THE

SOUTHERN AGRICULTURIST.

NOVEMBER, 1833.

PART I.

ORIGINAL CORRESPONDENCE.

ART. LXXIX.—*An Address delivered before the Agricultural Society of South-Carolina, at the anniversary meeting, August 20th, 1833; by* DANIEL K. WHITAKER.

(Continued from page 514.)

II. I proceed, now, to the second branch of my subject, which comprehends an inquiry into the methods which mankind have adopted for applying the laws of nature to the purposes of Cultivation.

This branch of the subject would seem, at first view, to open an immense field of inquiry, and it is no doubt true, that it does present it under a great variety of relations; but, carefully and truly considered, it will be found not to cover quite so much ground as might, at a superficial glance, be supposed. It must be borne strongly and constantly in mind, that the Science of Agriculture, properly so called, does not embrace, simply, a knowledge of the different methods which mankind have adopted in cultivating the earth, in different countries and in different ages of the world, but that it is confined, technically and strictly, to the methods which mankind have adopted in applying the laws of nature to the purposes of cultivation. This modification of the subject, it will be at once perceived, greatly cuts short its extent, contracts its boundaries, and

brings down the whole field of inquiry within a far narrower compass. There is scarcely a subject that can be named, about which men in every country, and in every age, have speculated more, and speculated more wildly than upon the subject of Agriculture. There is no interest in the false promotion of which more time, more labour, more money have been prodigally and foolishly expended in making useless experiments. Yet these experiments are every day repeated, and they every day fail upon repetition, and still repeated trials, and repeated failures, bring home to their ingenious authors, but a very small modicum of wisdom, however much they may of profitless experience. A man of enthusiastic temper finds out some single law of physical science, which is really and truly applicable, as far as it reaches, to the proper cultivation of the soil. Proud of his discovery, he proceeds to erect on this isolated principle, a theory of Agriculture, which he imagines will be equally well adapted to all countries, all climates, all soils, and the culture of all orders of plants. He does not stop to consider the connexion and intimate relation which exists between this law of nature which he has discovered, and the other laws of nature that are associated with the same subject, but like a quack, who having found out the properties of a valuable medicine, uses it indiscriminately for the cure of all diseases, he vainly imagines that his solitary principle will furnish a sure key by which to unlock all the mysteries of nature in reference to his subject. Thus the celebrated Tull discovered, that by a minute pulverization of the particles of the soil, whereby the earth was rendered more permeable to the action of Air, Heat and Moisture than by the ordinary methods of culture, crops might be gathered, in long succession, from the same land, without the application of any stimulating matter to promote and accelerate their growth. Upon this occasion, if he did not, like Pythagoras, when he had found out that the square of the hypotenuse of a right-angled triangle was equal to the sum of the squares of the two legs, run about wild and mad with joy, crying out "Ευρηκα!" "Ευρηκα!" "I have found—I have found it out!"—he, at least, believed, seriously believed, that he had capped the very climax of agricultural discovery—had found out the το καλον, the το αριστον—the great principle, in a word, of everlasting

fertility, and died enjoying the pleasing vision of his never dying fame. The agriculturists of Great-Britain, with their characteristic aversion to novelties, were slow to receive a master, and though the English are the great idols of Englishmen, it did not, in their view, amount to a demonstration of the truth of his theory, that Mr. Tull was their own countryman. But the more sanguine French, who are dazzled with systems, and are ever eager to grasp at grand results, and who are not economical of their courtesy to authors, merely because they are strangers, received the new doctrine with enthusiasm. Monsieur du Monceau immediately took up his pen, and accumulated volume upon volume of eloquent declamation, in order to convince what was then the French nation, and what is now the nation of Frenchmen, that nothing more was necessary than to adopt, and carry into active operation, the theory of Mr. Tull, together with certain improvements which his own genius had added, in order to convert their fertile and beautiful country into a glowing and glorious paradise. The ploughs were then set to work, and the "horse-hoeing husbandry," was in the full tide of successful experiment. A few years of fair trial were sufficient to settle the question. It was found that lands that had been cropped perpetually from the time of Clovis down to that age, however fertile by nature, could not, when the principle of fertility was exhausted, be actually regenerated and supplied with new life and new power, merely by deeply stirring the earth, and frequently turning up the soil to the action of the air. Mr. Tull, however, was unquestionably right to a certain extent, and his theory and experiments constituted a new era in the Science of Agriculture. He was right in supposing that the earth must be thoroughly broken up, rendered loose and porous, and fully exposed to the natural action of the elements. This is necessary, in order that the elastic principle of the atmosphere may have free access to the seed which it is its province to germinate—in order that the tap-root of plants may get a deep bed in the soil, and that the more delicate and fibrous radicles may extend themselves readily in every direction, in order to obtain their nourishment—in order that Heat, a due portion of which is necessary to vegetable life, may permeate, and diffuse a gentle and equal warmth through the soil—

in order that Water may percolate freely down to the roots of plants, and prepare and supply their food. A single experiment may be sufficient to test the value of Mr. Tull's system, and I shall therefore mention one that is worthy of notice. It was related to me by a gentleman from Massachusetts, and was communicated, as he informed me, to the Massachusetts Agricultural Society. A farmer, in that State, planted a field of Rye of seven acres, which he worked in the following manner. He ploughed one acre of the land; this he re-ploughed and ploughed another acre. He then ploughed the two acres already ploughed and ploughed a third acre, and proceeded in this manner, ploughing continually the land already ploughed, and adding an acre at each successive ploughing, till the whole field was completely ploughed. When this was done, the first acre had received seven ploughings, the second six, the third five, the fourth four, the fifth three, the sixth two, and the seventh one ploughing. He then cast in the grain, and harrowed it in, in the manner usually practiced in the Eastern States. The result, as communicated to the Agricultural Society, was, that the product of grain harvested from each respective acre, was in exact proportion to the number of ploughings each acre had received; that which had received seven ploughings producing the most abundant crop, that which had received six ploughings, the next most abundant crop, and so on to that which had received only one ploughing, which produced the least of all. There is no doubt that by minutely pulverizing and frequently stirring the earth, and stirring it deeply, the product of a field may be greatly increased. But something more than this is necessary for him who would reap a succession of crops, in perpetuity, from the same land. He must give the plant food. He must supply it with a due portion of decayed animal, or vegetable manure. It is a mistake to suppose that there is any principle of fertility in the primitive soils whatever, and this was the fatal error that lay at the foundation of Mr. Tull's system. Not all the pulverization which could be effected in the soil by a nine month's constant ploughing, would enable the planter to gather a crop of Cotton from a tract of barren sand.

It is not necessary to allude to the modes of culture pursued by the Ancients. In respect to all kinds of tillage,

we are certainly far in advance of them, however proudly they may still reign lords of the ascendant in the grammar schools. In Great Britian, the Science of Agriculture is better understood than in any other country—more improvements have been made in tillage there, than elsewhere, but the Agriculture of Great Britian, however perfect, and however advantageously its different branches may have been introduced into the Eastern section of our own country, is yet inapplicable, on an extended scale, to the Southern States. The peculiar modes which have been adopted in England for the raising of grain, such as wheat, oats and rye, will not apply at all to the culture of our Rice. We are but little acquainted with the process of cultivating the Cotton plant as it prevails in the East-Indies, and other parts of the world. So that our whole system of Agriculture is one almost entirely peculiar to ourselves; and to whatever degree of perfection it may have been carried, it is wholly owing to the light which has been thrown upon it by the researches and experiments of Southern Agriculturists. We do not yet cultivate the vine, so that we have borrowed nothing from France, although, if we should hereafter turn our attention in a direction apparently so profitable, we have the elements of a whole science as applicable to that subject, compiled ready to our hands, by an intelligent and enterprizing native of that country, now resident among us, whose living example and success are in full view to animate our efforts.* We get nothing from Germany, for we raise neither flax nor silk, and we are more fond of cultivating fields than forests to which attention there is devoted. We might gain something from Italy, in the department of irrigation, if our Legislature would imitate the liberality of the Italian States, and cut canals for us through our low country, enabling us, while we added to the riches of the State, to inundate or drain our fertile plantations at pleasure. In other respects, the Agriculture of Italy, though strongly resembling our own, is marked by no striking traits which indicate a decided superiority. We might learn from China, some valuable lessons respecting the preparation of manures, and from Denmark and Sweden, the methods in which the Science of Agriculture is taught in their universities.

* Mr. Herbemont.

But still, if there is nothing peculiar in the modes of culture in foreign nations that can be turned to the advantage of the Science of Agriculture, as far as respects the cultivation of our great staples, there are yet some common principles that apply to Agriculture, both abroad and at home, which must be well understood, if we would cultivate our own staples to advantage. All soils,* as we very well know, are not precisely of the same elementary structure. The basis of each soil is peculiar to itself. We are sometimes deceived in looking at the superficies of the earth, in respect to the real quality of the land we are about to cultivate. Even if we turn up the soil, and examine it critically with the eye, the observation to which it is thus subjected, although it may be ordinarily sufficient to justify the commencement of operations, may yet not be such as to determine, with precision, its true nature, or to guard against the disappointment resulting from a false estimate. If we would proceed on a perfectly sure footing—if we would not incur the risk of unnecessarily throwing away our time and labour, we must call in the aid of science, to discover that which the eye alone cannot penetrate—we must subject the soil to chemical analysis. A very simple experiment will enable us to ascertain of what elements the soil is composed, whether alum, sand, marle, chalk or magnesia predominates, and if there is a surplus of one, or a deficiency of another of them, the constitution of the soil must be altered, for it is only by a due admixture of soils, that land is brought into the most perfect state, and rendered most fit for tillage. A soil composed of pure clay will produce nothing. Neither will one consisting of pure sand, nor one made up of pure chalk. Clay must be added to sand and sand be added to clay, and clay or sand added to chalk, and a substratum will thus be formed, in each case, favourable to cultivation.

Again, a soil may be ill-constituted. It may be intermixed with materials fatal to vegetation. It may be in a diseased state, or in a state which will produce disease in plants that grow in it. The cause of the disease is frequently not externally developed. How it is to be found

* The term *earths*, taken in this connexion, would be more philosophical, than the term *soils*. I use the latter in accommodation to popular language, and because it is employed in the sense in which I here use it by most writers on Agriculture.

out, and how the disease, itself, is to be removed, are important inquiries. Here science again comes in as a handmaid to nature. The analysis, conducted on scientific principles, must be again repeated. Suppose there is an excess of the salts of iron in the soil, which is very frequently the case with our high lands, and which by producing the disease called rust, is fatal to Cotton. This must be remedied by dressing the land with quick lime, which converts the very source of disease into a source of nutriment, and causes that to give health and vigour to the plant, which before was proceding in a direct course to effect its destruction. Suppose there is an excess of calcareous matter in the soil. That fact being first ascertained, beyond a question, by actual and fair experiment, proceed to remedy the evil in conformity to the lights which science holds up to direct your course. Turn into the soil a crop of sorril before it goes to seed, or of any other vegetable in which the acid principle predominates, add sand or clay to improve the texture of the land, and mix with it a small proportion of any material which contains the oxide of iron, and your land will be restored to a prime, healthy state. If there is an excess of sand, add clay, and apply animal and vegetable manures. If there is too much vegetable matter, pare and burn; if there is too much clay, add sand and dress with lime.

The theory and application of manures is a highly important and interesting branch of the Science of Agriculture. It must certainly be a point of first-rate importance to the planter, to know what manures to employ in the culture of Cotton, and how he may most economically and most skilfully apply them. I say nothing of Rice, for our rice-bottom lands are generally so naturally fertile, and so lasting in their fertility, that they require no stimulating applications to make them produce crops. All that is necessary to refresh the land, is merely to turn in the stubble of the last crop with the plough, to bring the water well over the land in the Winter, and resort occasionally to fallows, where the land has been excessively cropped for a long series of years. But Cotton! that fragile, beautiful plant, whose importance in commerce, and utility in various arts crown it with something of a queen-like dignity, and which sickens and withers and dies under neglect, or the rude hand of the unskilful cultivator—a plant

which is incident to a variety of fatal chances in the most congenial soil, and under the brightest sky—this important plant, of so delicate a constitution, and of such peculiar habits, requires to be nursed with a care that borders on something like parental solicitude, and to be protected with a jealousy that seems nearly allied to a lover's fears. It must be fed—judiciously, yet generously, fed with food suited to its nature and its appetite, so as to enable it to perform actively its appropriate functions, and to accomplish, in due time, the quiet, though not ignominious destiny that is allotted to it. The theory of manures, therefore, must be studied. They are the planter's mint. Properly applied to the soil, they are an exchangeable commodity, whose exact value will be returned in guineas. If it be asked, then, what manures are best adapted to the culture of Cotton? I reply, that before you settle this point, a question, anterior in the order of the discussion, must be first disposed of, and that question is, in what land have you planted, or in what land do you propose to plant your Cotton? What are the constituent elementary principles of the soil that makes up your field? Here you must go back to the earthy substratum—to the virgin basis—you must have recourse again, if you have any doubts, to a fair exercise of your geological skill in the application of chemical tests. This is the starting point. Settle this question first, and science and experiment will unriddle the other. The primitive soils themselves, which, in their primitive state, are quite barren, may, by a due admixture, serve to manure your land. By the industry of man they thus come under new relations, and are endowed with new power. The existing state of the soil too must be regarded. A rich vegetable mould requires no manure. Lime, under every form, is a powerful and useful agent in cultivation, but, under every form, it cannot be applied to the cultivation of Cotton, nor in those forms in which it can be applied to this culture, can it be applied to all soils, or to the same soil in all states of the soil.* When first burnt,

* Dr. Cornelius Dupont, of St. George's Parish, made an experiment, a few years ago, with a mixture of quicklime and salt, as a manure, which he found highly beneficial. The land to which this mixture was applied, was a siliceous soil with an aluminous basis. Vegetable manure was first spread upon the list, and after the land was planted, the mixture was strewn upon the top of the bed in the proportion of one bushel of salt to two bushels of lime to the acre. The product of Cotton, resulting from this application, was nearly double the usual crop gathered from the same land cultivated in the ordinary way.

it acts as a powerful solvent, decomposing all animal or vegetable matter that comes in its way, and converting it into food for plants. It may, therefore, be applied to fertilize lands intended for Cotton, that have just been taken from the forest, recently broken up and abounding with hard roots, and intermixed with husky, undecomposed, vegetable matter. In its mild state, in which it does not act as a solvent in any sense, it may add fertility to a soil, deficient in a calcareous basis. As gypsum, it is said, does not act favourably upon land that is not more than eighty miles distant from the sea-board, it cannot be introduced, with advantage, as a manure in our low country. Marsh-mud, an alluvial deposit consisting of decayed animal and vegetable matter, strongly impregnated with saline properties, has been found, as we all know, by our sea-island Planters, an excellent manure for Cotton on a sandy soil.

The question is sometimes asked, how do lime, gypsum, salt, and other manures of that order, act upon vegetation? Do they actually supply food to the plant, or do they simply stimulate the fibres of a plant to stronger action, and so enable it to take up more food? Sir Humphrey Davy maintains the former position; a writer in the *Southern Review* maintains the latter. With due deference, I must say, that these theorists indulge their imagination at the expense of their philosophy. We may speculate, but we cannot decide about these matters. They are above our reach. We have no acquaintance whatever with the *modus operandi*, the manner of the operation of these agents. All that philosophy has ever discovered—all that science has ever called for, in order to constitute it science, is simply a knowledge of the elementary causes of things, and of the ordinary and most important effects of the action of those causes. Beyond that, when we would look into the mode of the connexion that exists between cause and effect—all is a riddle—we play at blind-man's-buff—reason, with all its superiority, gropes ludicrously about in the dark, and falters and stumbles at every step. But we know enough on these subjects for our present purpose. Our great concern is to increase the product of plants, and whether the manure, that effects this end, is called food or stimulus, is a matter of no consequence.

A far more interesting question in reference to this topic, and one of a decidedly practical character is, whether barn-yard or cattle-pen manure, which is adapted to every kind of soil, and to every kind of culture, should be applied to the land before it has undergone decomposition, or whether it should first be well fermented. Sir Humphrey Davy, and other theorists, have recommended its immediate application, before fermentation. The argument in favour of this mode is, that all the nutritious particles of the manure are, in this way, saved to afford food to the plant, but that in the ordinary method of its use, it loses one-half or two-thirds of its nutritious qualities, by the escape of gases in decomposition, before it is applied to the soil, and that, on the score of economy, and with a view to powerful action, it should be applied in its fresh state, and be suffered to ferment in the soil. But practical agriculturists, who have tried both the new and the old, prefer the old method. They find that the unfermented application creates too powerful a stimulus for healthy action in the plant, induces disease, and frequently kills, where it was only intended to nourish. In a climate like ours, in order to turn the whole fertilizing principle of the manure to the benefit of the plant, it is practicable, and would seem to be judicious, to pursue a middle course, neither to apply it, before fermentation, to the living plant, which it might injure, not suffer it to undergo putrefaction, before it is applied, which so much diminishes its value, but, in the winter season, plough it thoroughly and deeply into the soil, in its unfermented state. In this way, none of its fertilizing properties will be lost to the land, and it will be in a suitable condition, in the spring, to afford nourishment to the plant without enervating it. It would seem necessary, however, that manures intermixed with fibrous vegetable remains and weeds, should, in all cases, be suffered to ferment until the seeds and roots undergo decomposition, before they are applied to the soil. This whole subject of manures is an interesting topic of inquiry, and might be dwelt upon at great length, and there are various other branches of Agriculture which might be regarded in a strictly scientific point of view, as illustrating and enforcing the claims which I have preferred in its behalf. But I forbear to add any thing more in the way of proof,

as my zeal in a good cause, however pardonable, might be indulged at the expense of my own understanding and of your patience.

(To be concluded in our next.)

ART. LXXX.—*Account of an Agricultural Excursion made into the South of Georgia in the winter of* 1832; *by the* EDITOR.

(Concluded from page 529.)

Having gone through with the crops cultivated at "*Hopeton*," it only remains for us to notice the general system of management pursued at this place, and to which we invite the particular attention of our readers. We will here extract also, (as we have hitherto done) pretty freely from Mr. Couper's notes.

GENERAL SYSTEM OF MANAGEMENT

"Two leading principles are endeavoured to be acted 'on, 1st, to reduce every thing to system. 2d, to introduce a daily accountability in every department.

"In order to accomplish these objects, the negroes are 'classed into rateable and unrateable hands. The rateable or working hands are divided into field-hands and 'permanent jobbers. The field hands-are divided into '7 gangs;—3 of males, and 4 of females. Each hand is 'rated agreeably to his or her efficiency. There are 4 'rates of each sex, viz. full hands, $\frac{3}{4}$, $\frac{1}{2}$ and $\frac{1}{4}$ hands, and the 'daily task is proportioned to the rates,—4 quarter hands 'being required to do the same work with one full hand.

"The male gangs consist, 1st, of the prime young and 'strong men, constituting the *ditching* gang, they are all 'full hands. 2d, of the second class of men, and 3d, of 'third class.

"The women gangs are divided into 4.—1st, of the 'prime, young and strong women, 2d and 3d, of the less 'efficient, and 4th, of the old and very young.

"Each gang is under a separate driver, whose authority is limited to his own gang. Over the whole is a head driver."

The object of this division is to apportion the gang to the character of the work to be performed. For instance: in ditching none but the primest men, (No. 1,) are employed. For moting and assorting cotton where numbers are required and not strength, No. 3 of women is employed. This is, perhaps, better illustrated in the harvesting of the cane crop. No. 1 of women cut the canes, No. 2, strip the blades, and No. 3 bind and carry. The old bind and the young carry.

Besides the field hands there are a number of jobbers.

"The permanent jobbers are thrown into classes, and one individual of each class has charge of it, and reports the work done by it. The principal classes are carpenters, coopers, blacksmiths, masons, carters, stock-minders, hospital, nursery, garden, &c. A yard-driver attends to the feeding of the stock, grinding, small issues, and keeping the buildings in order.

"Every evening the drivers and heads of classes make a report to the overseer in my presence of the employment of their respective hands. The drivers report the number of hands and their rates employed in the field, the quantity and kind of work they have done, and the field in which it is done—the number and rates of the sick—the number and rates of such hands as may have been employed in jobbing, and how they have been employed. The heads of classes report the quantity of work done by that class. These reports are taken on a slate, and are copied into the "Journal of Plantation work," which forms a minute and daily record of the occupation and quantity of work done by the different gangs. After the reports are received, the work for the following day is arranged, and the head driver is directed what is to be done, and the manner in which it is to be executed. He distributes the orders to the sub-drivers and others:—the sub-drivers to the hands composing their gangs.

"As the quantity of land in each field is accurately known, a constant check is had on the fidelity of the reports as to the quantity of work done. It only remains, by a daily inspection, to see that all operations have been well performed."

To the north of the dwelling house, there are two rows of oak trees, (about 100 feet apart) extending from the mansion to the hospital, which is a neat tabby building, with a fine grass plat in front, shaded by several large oak trees. On each side of these rows, at a short distance, are the various offices and buildings necessary to the plantation (among which is the overseer's house) forming two ranges nearly the whole extent. These are enclosed by fences, and constitute what may be termed the yard.* To the east of the hospital is one of the negro settlements, the houses appear to be very comfortable, and are ranged in two parallel rows, forming a street of considerable width, which leads down to the stack-yard and sugar-house.

We visited both the nursery and hospital, which are in one building. They were remarkably neat and clean, well ventilated, and heated altogether by steam, which produces a more equal temperature throughout, than could be attained by fire-places, and the constant attention necessary for the latter is avoided. The following extract will show the arrangement and management.

"'The unrated hands are the superanuated and children. 'The latter constitute the nursery gang. These are placed 'under the charge of a careful old woman as nurse, and 'have a half-hand to cook for them. Every morning 'about sun-rise the children of the different settlement are 'brought by their mothers and nurses to the nursery, and 'are delivered into the care of the old nurse, who sees 'them washed and combed: at 8 o'clock, a breakfast con-'sisting of hominey and molasses is issued to them; and 'and at 2 o'clock, a dinner of soup made of salt pork, and 'either Irish potatoes, okra, peas or turnips, together 'with corn dumplings or sweet potatoes. About sunset 'the children are taken home. During Sundays they 'remain at home. Suckling women are employed near 'the settlement, and come to the nursery to suckle their 'infants, who are never allowed to be carried into the 'fields. To enable them to do so, one-quarter work is 'deducted from their tasks. Each child receives from one 'to two quarts of corn per week for suppers and Sundays. 'The nursery room is heated by steam and is well venti-

*This yard which extends from the dwelling house to the hospital is 150 feet wide and 950 long.

'lated. Attached to it, is a spacious piazza, and a yard 'coated with grass and shaded by trees.

"*The sick* present themselves every morning at the 'hospital, when they are examined aud prescribed for. 'The hospital is an airy, and warm building 80 feet by '24, with four wards, an entry which answers as an exa-'ming room, a medicine closet, a kitchen, and a bathing 'room. One ward is for lying-in women, another for 'women, and two others for men. The whole is heated 'with steam, supplied by two small copper boilers, and 'this mode has been in use for 14 years. The accommo-'dations for the sick are a cot for each person, with a 'straw matrass and pillar, a pillar case, 2 blankets and a 'coverlid, with benches. The beds are refilled with clean 'straw once a month, and the cases and blankets at the 'same time washed. The wards are swept every day 'and washed out once a week: and the whole building 'white washed twice a year. The sick are allowed okra, 'coffee, molasses and gruel, and other nourishment when 'required. A daily account is kept of the names of the 'sick, their diseases and the remedies applied. A nurse 'and two small girls attend to this department."

We have already noticed the systematic manner in which all the operations on this place are conducted, and have referred several times to the books kept; these were all submitted to our inspection. They consist of "journal of plantation work," "hospital book," "corn book," "stock book," "crop books and sugar-house books."

In these "accurate accounts are kept 1st, of the *articles* '*received and issued;* 2d, of *stock*, viz. horses, mules, cattle, 'sheep and hogs, showing the increase and decrease; 3d, 'of *corn* received and issued; 4th, of *rice winnowed and ship-'ped;* 5th, of *cotton picked*, showing the daily, monthly and 'annual amount from each field; 6th, of *cotton sorted, gin-'ned, moted, packed and shipped;* 7th, of the *sugar crop*, show-'ing daily, the number of acres cut, the field, the number of 'gallons of juice expressed, the quantity of sugar (sugar 'proof) boiled off, the quantity of lime, &c. used, the 'effect of the temper, and a column of miscellaneous re-'marks. In addition to these, a regular set of mercantile 'books is kept."

To give some idea of the manner in which they are kept, we subjoin an extract from the "Journal of the Plantation Work," showing the work of one week.

JOURNAL OF PLANTATON WORK.

GANG WORK.							SICK.		JOBBERS		JOBBING.	REMARKS.
DATE.	GANGS	*Workers.* No.	Rts.	quant done.	KINDS OF WORK.	WHERE DONE.	No.	Rts.	No.	Rts	HOW EMPLOYED.	
1833.	St.	32	32	15 t	Planting Cane.	West old field.	2	2	5	5	1 ginning cotton, 1 attendant to do. 1 fanning do.	Clear, warm day.
	J.	36	27¼	13½	do.	Do.	3	2¼	3	1¾	1 attending scaffold, 4 driving gin oxen.	
Monday,	Sc. H.	22	12½	12½	Laying cane trash and listing do.	East old field.	3	1¼	19	8¾	18 assorting cotton, 12 moting cotton.	
14	D.	31	19	19½	Scattering manure and listing.	Do.	4	3	6	3	1 packing cotton.	
January.	L.	42	42	630f	Ditching.	W. ditch triangular field.	1	1	9	9	6 carting out manure, 4 ploughing in do.	
	Sc. D.	35	27	13½	Planting Cane.	West old field.	3	1½	11	4½	2 sawing, 2 hewing tim. 3 get. clap boards.	
	A.	32	19	9¼	do.	Do.	1	¾	4	2½	1 cleaning sugar mill and engine.	
		230	178¾				17	11¾	57	34½		

"*Discipline.*—The rules and regulations established 'are few and simple. Obedience, attention, honesty, and 'orderly behaviour are insisted on. Every departure from 'correct conduct is promptly but moderately punished. 'The principle endeavoured to be established is that 'punishment certainly follows crime—and that justice is 'meeted out with an even hand to all. Passion is banish-'ed as far as possible.

"The result has been very satisfactory. Disobedience, 'running away, and riotous conduct are scarcely known 'on the plantation, and the necessity for punishment is 'very small, and almost confined to very slight inflictions 'for neglect of work.

"*Regular, firm* and *mild* discipline is held to be at once 'the most efficacious as well as humane system. The ex-'tremes of indulgence and severity are equally fatal to the 'happiness and good conduct of a gang. Our refinement 'in the police and over legislation are ill adapted to the 'structure of negro society. Simplicity should pervade 'every department.

"*Mode of Working.*—Task work is resorted to when-'ever the nature of the work admits of it; and working in 'gangs as is practised in the West-Indies and the upper 'country, is avoided. The advantages of this system are 'encouragement to the labourers, by equalizing the work 'of each agreeably to strength, and the avoidance of 'watchful superintendance and incessant driving. As the 'negroes work in adjoining tasks, they are incited to ex-'ertion to a certain extent by emulation, and as the task 'of each is separate, imperfect work can readily be traced 'to the neglectful worker. By reference to the Journal of 'Plantation Work, it may be ascertained months after the 'execution of any work, by what driver's gang it was done, 'and through the driver by what individual. Accounta-'bility is in this way readily established."

Independent of the great use the large canal is for draining the fields, it answers other valuable purpose, among which is, facilitating the harvesting of the crops, especially that of cane, which without it would be very laborious, but is now effected with comparative ease, by means of flats drawn by oxen. These flats contain from five to twelve tons of cane. Three small flats containing five tons each are joined together and tracked, with ease by a pair of oxen.

So great is the facility by this means, and so superior to harvesting by carts, that Mr. Couper intends to extend these canals, and do away with some of the roads.—These roads also deserve a passing notice. At first it might appear that there was a great loss of ground, but this is not so. These roads are all planted with corn which being removed early, leave them clear for the passage of the carts. When about harvesting, temporary rail-roads are made along these, which are afterwards removed. The crops are, therefore, by means of canals and rail-roads got in with considerable facility.

We now close our account of "*Hopeton*," much more we could add, but we have already exceeded our limits. We have not been able to do that justice to the place which it deserves. The whole of this has been written whilst we laboured under indisposition, and is, therefore, very imperfect, but such as it is, we still hope it will have some influence on our planters to go and do likewise.

ART. LXXXI.—*On the rearing of the Silkworm and culture of the Grape Vine; by* P——.

"Winnsboro' June, 23, 1833.

Dear Sir,—A few years since, several persons in this neighbourhood paid some attention to the rearing of silkworms, and even to the manufacture of silk on a small scale. I sometimes met my friends with one or more garments of home-made silk, that would compare well with the imported article. Attention to this business seemed likely, at one time, to become fashionable. Some spoke of making extensive preparations for it, and our Agricultural Society, by way of encouragement, imported the *Morus multicaulis*, which was pretty generally distributed, and grows with great luxuriance in our soil. Such, however, is the difficulty of overcoming inveterate habit,

that the rearing of silk could not obtain a permanent foothold in a single family, although its practicability were established by numerous successful attempts. Many individuals on account of its very superior quality compared with the imported, make an abundant supply of sewing silk. This is something gained. I think it is capable of demonstration, that with a good market for cocoons, which I am told may be found in Charleston, at all events in Baltimore, small capitalists, with convenient preparations, by no means costly, would find it far more profitable to raise a crop of them than cotton.

I have for a good many years past attended to the cultivation of the vine; and I have good reason, (founded in some experience) to believe, that it it may be reared here to advantage. The soil of my vineyard is a stiff red clay, decomposed trap, I plant in large holes about two feet in depth, and fill up with a mixture of loam and sand. In a few instances I have used the scoriæ from the blacksmith's shop, in setting out cuttings, according to the suggestions of Mr. Clarke of Florida. The vines run upon arbors about eight feet high, made of hewn timber or scantling, covered over with long slender pine poles, with the rough bark carefully pealed off. The vines are trimmed close, in the winter months, after the usual method, and so confined to the frames on which they run, as not to be affected by the severest winds. I have never watered nor manured them since they were planted. The hoe is never used except for the removal of grass and weeds. Suckers from the old wood are carefully removed, but the fruit-bearing shoots are never topped, nor a leaf intentionally taken off. I have not failed to raise a good crop of Herbemont's Madeira for twelve years. In some seasons I have had them in great abundance, and in the highest perfection. Bland's Madeira has generally succeeded well, but I think a soil of decomposed sand-stone or granite, the proper home of this species. The admirable Lenoir overpays me every year for the attention bestowed upon it. It never rots, and always fulfils its promise to the letter. I cultivate several other kinds which answer tolerably, and which are suffered to remain as members of the vineyard *dum bene se gesserint.* I have extirpated the black Hamburgh as a cumberer of the ground. This variety, whose origin is uncertain, and which has been so generally rear-

ed in the country as the *English grape*, has done more by its numerous frauds upon the vigneron, to call in question the capability of the State for the production of the vine, than all others. The cuttings, however, live without difficulty, and afford excellent stocks to graft on. I have found by experience, that old vines bear more plentifully, and perfect their fruits more certainly than the younger ones. Those who intend to rear the vine, should, therefore, begin early, and exercise patience. The traveller in passing through this part of the country will find here and there some attention paid to the cultivation of the vine, principally for its fruit: not a few are extending their views further. Cuttings are in good demand every spring. The planting of vineyards, and the making of wine are becoming ordinary subjects of conversation. A half dozen successful examples would wake up our people to the enterprize in good earnest. I am somewhat advanced in years, but I entertain hopes of yet living to see the greater part of my neighbours manufacturing an abundance of good wine for family use, and the bad habit of drinking ardent spirits as a common beverage entirely given up.

Very respectfully, dear Sir,

P———.

ART. LXXXII.—*Account of several successful experiments in the culture of Clover, in Abbeville district; by* THOMAS PARKER.

"Rocky Grove, Abbeville District, July 2, 1833.

Dear Sir,—I have before communicated to you the result of several experiments which have been made in this neighbourhood in the culture of Red Clover, together with such information relative to that grass as I had been able to obtain, and which I thought might be interesting to others. Our continued experiments with that grass have furnished us with information, which, perhaps, may be acceptable to you.

In my last communication on this subject, I advanced the opinion that in this State clover might be sowed from the latter end of September to the middle of November, and from the middle of February to the middle of April. The two following experiments, however, show that success cannot be calculated on, if clover is sowed in November. One of my neighbours sowed early last November about two acres of clover, whilst a few days after, to wit, on the 12th and 13th of November, I sowed about the same quantity. In both instances the clover came up well and grew off rapidly, but in both it was entirely killed during the ensuing winter by the frosts. Other experiments prove that if sowed not later than the middle of October, it will attain strengh enough to stand the winter. I will mention one other instance to those you have already recorded in the Agriculturist. Early in October, 1830, the winter of which year was the most severe I recollect occuring in this State, one of my neighbours, Capt. Calhoun, sowed about ten acres in red clover, which succeeded perfectly well, and which has continued to yield him much green food and hay. In the same communication I mentioned that in the experiments up to that time made in this neighbourhood, the clover seed had been sown on the ground and not covered, but stated from the experiment I had made that spring, I thought it ought to be lightly covered. This opinion, from subsequent experiments, now amounts to conviction. I also mentioned that two of my neighbours and myself had that spring (A. D. 1832,) sowed each about 15 acres; the result of which I will now give you.

We sowed our clover-seed in March, on or with small grain, but did not cover it. A severe drought immediately followed; the consequence of which was, that though at the time of sowing there was moisture enough in the soil to cause the seed to sprout, yet the soil soon become so very dry, that it did not take root, and the whole perished, with the exception of 4½ acres, upon which Dr. Reid was fortunate enough to get one shower, he having sowed thirteen acres. It is possible, that notwithstanding the drought, the clover might have succeeded, had the seed been covered, but from the two causes combined, it was lost, with the above exception. The above mentioned 4½ acres being sowed for pasturage, had only two quarts of seed

instead of four put on it per acre, and as the shower of rain which fell on it was a light one, and was succeeded by a drought, the stand of clover was not by two-thirds as full as it should have been. After a considerable spring drought, we had on the 23d of May a good rain, which was succeeded by an eleven weeks drought, the most severe known in this section of country, and which caused with us, a general failure in all kinds of crop. Notwithstanding, however, all these disadvantages, Dr. Reid, this spring obtained at one mowing from those 4½ acres, 20 unusually large, well tramped and high piled wagon loads of hay; more, he thinks, than he usually gets of fodder from 70 acres of corn; and a food, for which his horses forsake his fodder though well cured. The clover was sowed upon unmanured mulatto or red land, which has been in cultivation upwards of sixty years; its apparant average height, as it stood on the ground at the time it was mowed, was full three feet and a half high, and much of it four feet. I say the apparant height, for the real height or length of the spears or stalks was much greater, but in consequence of its standing so thin on the ground, the spears or stalks shot along the ground and filled up all vacancies before it assumed an upright growth. Col. Saxon, another neighbour, also has 4½ acres of clover, and he also got from it this spring at one mowing twenty wagon loads of hay, the height of his being 2½ feet, and this being the third year he has mowed a part of it, which still yields well. Away then with the idea that our sun is two hot, and our soil too arid for its successful cultivation; if ever there was a season calculated to test this point, it was the last.

Dr. Reid has also a patch of less than a quarter of an acre of red clover; this is also on mulatto land, which, however, was well manured. This patch has for the last ten weeks furnished green food abundant for two milch cows, a part of which time, another milch cow and two colts were fed from it, and during one week eight horses, and it has not yet been quite cut over the second time. During this spring we experienced very heavy rains which have washed our lands badly. Dr. Reid's 4½ acres of clover was on very rolling land, yet the clover has completely preserved it from washing, whilst his other fields

and those in the neighbourhood generally, are so much washed as to be materially injured.

But I fear I grow tiresome, and will therefore only add, that there is now a considerable quantity of clover sowed in this neighbourhood, and that a number of my neighbours from the success which they have witnessed attending its cultivation for the last four years, are preparing to sow it, some of them on a large scale.

Respectfully, yours.

THOMAS PARKER.

ART. LXXXIII.—*On the Changes Wrought in Beaufort District, by the application of Manure; by* A PASSER BY.

" June 19 1833.

Mr. Editor,—In the last number of the *Agriculturist*, you complain, and justly too, of the want of original matter for your work. I hope your rebuke will have its intended effect; but what are many of your subscribers to do? Very many of them, like myself, have none of their own experiments to communicate. But to leave your subscribers no excuse whatever; you ask of them to communicate what they see, or hear, as the results of the proceedings of others;—surely then, the portal is widely open to us all.

This emboldens me to write what I have been an eye witness to, for three years past. Not what I have done myself—to wit, having occasion frequently to pass through Beaufort District on business, I have noticed with peculiar pleasure the state and vigorous appearance of some of the crops of corn and potatoes, in the Black Swamp settlement, St. Peter's Parish. I have been acquainted with that part of the country for more than thirty years. The old inhabitants were satisfied in former days with the yield of 10 or 12 bushels of corn per acre (the soil is thin.)

In 1830, when I first noticed the growing crops, on the same lands I had formerly known to produce so leanly, I was surprised to find a luxuriant and gigantic growth of corn. I mean gigantic when compared with olden times, indicating a yield of 20 or 25 bushels per acre, (perhaps more.)

What hath wrought this mighty change, thought I to myself. I must inquire into this matter—accordingly I did so, and what do you suppose it it was? Why, nothing but manure: well, said I, my good friend, how do you obtain manure in sufficient quantity to benefit, so materially, this 60 or 80 acre field?

Answer—we rake oak leaves and pine-trash in the woods—litter our stables, our stable lots, and our cow-pens—and we sweep all the litter off our yards and round and about our negro-houses; that is one way: besides that, we haul large quantities of leaves and trash from the woods to our intended corn-fields, there deposit them in heaps, adding one wagon load of cotton-seed to every ten loads of trash, scattering the seeds regularly throughout, then earth over the contents, and in a few months it is fit for use. We then chequer our fields, place a certain quantity of this compost at each cross place, drop our corn and cover with the hoes; this Sir, said my informant, has been the cause of all that difference which you have noticed. Manure has really doubled the product of our fields. Can this be so, thought I. But could I doubt—the thing was self-evident—surely then, manure has wrought wonders for you, said I.

I very recently passed that way, and noticed again promising crops, with one exception, and that was a field planted 3 feet 9 inches apart one way, (old cotton rows) and two stalks in a hill (too thick) this has injured its looks, and will lessen its yield; but this, is a good lesson. The owner will, in future, avoid this error of judgment, the fields being in judicious hands.

Before I conclude, let me add, that I passed twice in each of the years 1831 and 1832, and the results were the same, except the last season: owing to the drought, the crop was curtailed. This, Mr. Editor, ought to stimulate all of us to use the same industry, and spare our wood lands, make more provisions, and stop the current of emigration which sets south and west. I ought, in justice to

others, to observe, that manure is in general use throughout the district, so far as I have visited, and in many instances, systematically husbanded and judiciously dispensed; but no where is the effect (owing to the soil, I presume) so manifest as in the above settlement.

If these remarks are worth any thing, you may publish them, they have been hastily scratched off by

A PASSER BY.

Art. LXXXIV.—*Observations on the Oat Crop; by* A Highlander.

"Sparta, March, 23. 1833.

Mr. Editor,—In this part of Georgia, the oat crop is annually acquiring additional importance. But a few years ago our planters hardly supposed it possible to support a plough-horse through the season of hard labour, without an abundance of "corn and fodder;" now many give a decided preference to oats. A neighbour of mine, and a very successful planter, asserts, that mules and most of his plough-horses eat from the rack, oat straw (uncut) with as much avidity, and as much benefit too, as corn blade-fodder, or crab-grass hay; and that the most economical and profitable method of feeding away the oats is, not to cut the sheaves, straw head and all, in a straw cutter, as is usually practised; but to thrash out the oats, feed the grain away in the manger, and the straw, as fodder, in the rack.

We sow oats from the 1st of October to the middle of March, and the average crop may be estimated at fifteen bushels per acre. The common opinion, however, is, that the fall sown crop turns out from 50 to 100 per cent. more than those sown in February or March. But fall sowings are entirely precarious, three crops out of four being destroyed by the frosts of mid-winter. We have in common use among us four or five varieties of the oat, the most productive being the potato or Irish oat; all seem to be

equally liable to destruction from frost, if sown in the fall. It is, perhaps, worthy of remark, that this grain is found to suffer very little from this cause, where the seed is committed to the soil in January, or indeed, at any time after the winter has fairly set in. I usually begin to put in my crop the first week in January, and find the young germs not only to live, but to produce a better crop than if sown later.

A variety of oat having the hardiness of rye or wheat, which we might safely sow in October, is a great desideratum with us. Pray, Sir, if you or any of your correspondents know such a variety, inform us where seed can be obtained.

The skinless or Chinese oat which you kindly sent to me last summer, was sown about the middle of this month; from accounts given of its great production in Europe, I have high anticipations of its use in this country; believing, as I certainly do, that no part of the world, with the same husbandry, would yield more abundant crops of oats, wheat, or barley, than the hill country of Georgia. So soon as I get seed enough of the Chinese oat to risk a fall sowing, I will do so, and give you results.

Wishing continued prosperity to your valuable journal, I remain, very respectfully, your obedient servant,

A HIGHLANDER.

ART. LXXXV.—*On the Preservation of Potato Slips; by* AN OBSERVER.

As this is the season of the year for gathering of potato slips; and as the crop this year is likely to be very small of that excellent and very valuable article of provision, the more perfectly it can be secured the better for the planter. I offer for the benefit of all, the result of a

plan adopted from a recommendation in your valuable publication. It was tried by a gentleman who did not live to witness the success of the experiment. His negroes and stock were sold in the winter, and the provisions not disposed of until the spring, when from the high state of preservation in which they were found, they sold to much advantage. The perfect preservation of the potatoes was the more remarkable, as the winter had been unusually severe.

The method adopted was to secure them in hills as fast as they were gathered. The hills were made in the usual way of pine-trash and corn-stalks, covered with earth. But they were a little larger than usual, with this particularity. A pine-sapling about the size of a man's arm cleaned of the bark, was stuck perpendicularly into the middle of the hill, with the small end downwards. The potatoes being thrown loosely round the stake to the usual height, and the covering well secured, the stake was withdrawn. A piece of dry bark, (half the round of a small tree,) was placed transversely over the top of the hill, and that covered with earth, so as to keep it in its place. The object of this arrangement was certainly to give an opportunity for the moisture of the potatoes to escape through the space at first filled by the sapling, and under the arch of bark, while the potatoes were effectually protected from the changes and severe cold of the winter.

I hope some of your readers may be induced to try this plan and publish the result. I consider it no trifling advantage, that while the planter is using the contents of one hill, all the others continue undisturbed and sound, until they in turn are likewise consumed.

AN OBSERVER.

ART. LXXXV.—*Estimate of the daily Labour of Negroes; by* A MEMBER *of the Agricultural Society of South-Caralina.*

Ditching.—In ditching, much depends upon the nature of the ground. In old rice-fields, free from roots and stumps, the task for an able negro man is 600 cubic feet, but he cannot do as much in canals. Ditching is much retarded by gravel, and iron mould as well as by roots and stumps. When these obstacles occur, no regular task can be assigned. If he excavates three or four hundred feet, he will do well. When large cypress stumps are met with, the best plan is, to select such negro men as are most expert at the axe, and grubbing hoe, accompanied by one or two negro women, to pick up the chips, and clear round the stumps with the hoe. A very large cypress stump will take one or two days work, and perhaps longer. In ditching, particularly in canals, it is advisable to work in gangs of six or eight, in a given distance, consisting of men and women. A woman can do nearly as much work as a man, some of them being very expert at the axe and grubbing hoe. While the man is handling the axe or spade, she can be employed in hauling back the excavated earth from the margin. All ditches and canals ought to be dug with a great slant, making the upper diameter, nearly double the width of the bottom, cutting out every stump or root, that would impede the course of the water, at the same time giving neatness and shape to the canal or ditch;—never dig round a large stump.

Making Bank.—In making bank, it will take one or two hands less in number, than the same length in ditching, except where the soil is stiff clay, and the margin 20 feet, in which case the full complement will be wanted to have the bank well made and properly trimmed. All chips and roots ought to be picked out, and nothing but the solid earth put upon it. In old rice-lands, free from roots and stumps, a centre ditch can be dispensed with, but the basis upon which the bank is made, must be turned up with a hoe, which will answer every purpose. In new and rooty land, a centre ditch must be made.

Turning up land with a hoe.—A negro man or woman can in rice-land, turn up one quarter of an acre, and do

it well, but in a stiff tenacious clay, it will require a third more labour. To put rice-land in proper order, the plough and harrow must be resorted to.

Listing ground.—In listing land for corn, cotton or potatoes, half an acre is the quantity allotted to each worker; but in old pastures, which are always so trodden in by cattle, and bound by roots, weeds, &c. a quarter of an acre is as much as he can do, and even then, he will, with difficulty, get through his work. In listing old pasture ground, the hoe ought to be struck deep to get through the matted grass-roots, which will considerably lighten the labour in bedding up. The plough would much more effectually operate upon such land.

Bedding up.—The task in ridging or bedding up, is always one quarter and an half, and in a light soil, half an acre is generally done; but in old pasture lands, where the texture is close and hard bound with the matted roots of grass, he cannot accomplish it without the assistance of the plough. In ridging potato beds, two negroes are always employed in one quarter of an acre. Potato beds requiring to be made very broad and high, it would be advisable to run four furrows with a plough between each list, in which case, two negroes can with ease make a large broad and high potato bed; ridging one quarter and an half.

Trenching Rice.—In light lands, and lands prepared with the plough and harrow, a negro man can with the back or drag trench, accomplish three quarters of an acre, containing between 80 and 90 rows in each quarter; but where the land is tough and unprepared, the side trenching must be resorted to, in which case he cannot do more than half an acre. A negro woman will always cover what the man does in trenching, and often times covers one acre. Where rice-lands are laid out in half acre, (50 feet) 60 rows are generally put in a quarter; the rows 15 inches apart, which gives 120 rows, but where land is drained every 75 feet, 60 rows at 15 inches, cannot be put in a quarter.

Hoeing Cotton, Corn and Potatoes.—In hoeing cotton, corn and potatoes, the usual task is half an acre, but neglect in the first hoeing will occasion great labour in overcoming the grass in future hoeings, particularly cotton and potatoes—having once suffered, they will never

yield as much as they would have done had they been attended to. On the appearance of the potato above ground, it is advisable to hand-pick them, and keep them free of grass, until the plants are well advanced, and commence running, when the hoe can be applied by hauling up, and keeping clean until the beds are covered with the vines.

The same treatment must be observed in the attendance of cotton. Early neglect destroys the plants.

In planting potato slips, the general practice has been to list the land, make up the bed, and plant; in doing which, two negroes are employed in ridging one quarter, and seldom succeed in making them sufficiently broad and high. A plough made use of would greatly facilitate, and effectually accomplish what the hoe cannot, by running four heavy furrows between each list, in which case, one negro can make up one quarter in high and broad beds, and plant the same in vines.

Hoeing Rice.—In hoeing rice, every art should be made use of, to relieve the negro of this labour, which depends much upon the judicious application of water in the early stage. On the contrary, a too free use, and improper application, not only increases the labour, but considerably lessens the product of the crop. A negro can hoe, in a crop well managed, generally half an acre, upon tide-lands. Upon inlands, partially drained, he can scarcely hoe one quarter, and will find considerable labour in getting through. Much allowance, therefore, must be made when the grass grows so freely in showery seasons.

Harvesting Rice.—About a week or ten days before you begin to harvest rice, draw the water from your fields. In order to judge when rice is fit to cut, examine the lower part of the ear; if there remains one or two grains of a greenish cast, the rice is then in a state for the sickle.

Negro drivers and many overseers, in general, allow it to remain until all the grains have turned yellow, in which case, the crop ripens too fast, and you cannot keep pace with it in cutting. Much, therefore, is lost by shelling. Avoid, if possible, stacking rice in the field, whole crops are lost sometimes by storms and freshets; have it brought home, and put into stacks 8 feet diameter, and about 18 or 20 feet in length, 8 or 10 feet high, where let it remain until time for putting it into ricks. In making it into

these small ricks, put away all unsound and light rice separately.

Ricking Rice.—In ricking rice, great care should be taken to select all sheaves that are in the least injured by dampness, and put away in small stacks, with any light rice you may have. The propriety of the length of a rick depends upon the number of negroes you work, so that, in threshing, the rice may not be too long exposed to the weather. In a gang of 25 or 30 workers, it is advisable to make them about 20 feet long, 12 feet wide, carried up straight to about 6 feet, then slant off gradually, carrying it up to about 18 or 20 feet high; lay the sheaves all one way, and close. Such a rick, of solid rice, will produce from from 20 to 25 barrels of clean rice of 600lbs. each barrel. Upon the top of each rick, have a heavy pole or rail suspended on each side by a grape vine, under which place a quantity of straw, to protect the rice from the birds and the weather.

Rice should be put into large ricks, until it has had about three weeks benefit of the sun, otherwise it will be apt to mow burn.

Threshing Rice.—Six hundred sheaves of rice is the usual task for a negro man to thresh per day, and five hundred for a negro woman. After threshing, it is the business of the driver to examine the straw before it is carried to the general heap.

Making Rice Barrels.—Three barrels a day is the task for a cooper, and in making half barrels, four a day. The length of staves 3 feet 2 inches long, and 2 feet across the head. Such a barrel will hold ten bushels of clean rice, or 600lbs. nett.

Hoop Poles.—Where hoop poles are plentiful, a negro man can cut one hundred, and bring home, where the distance is not great.

Splitting Staves.—In splitting staves, four hands are generally sent and employed thus: two to cut down and cross-cut the tree, to the length of the staves wanted, allowing two or three inches over; one to bolt, and the fourth negro is employed in splitting. Six hundred is the task per day. The next day, two negroes are sent to draw and trim the staves split the day before; their task is 600 per day. The staves being split and trimmed, are put into piles of 4 and 500, to season before carting home.

Splitting Barrel Heading.—The same number of hands are employed in splitting heads for barrels. The task for splitting per day, is 250 pieces, of two pieces for each barrel head, and 150 in hewing and dressing for the cooper per day. If more than two to the head, the task is 200. They ought to be hewed immediately as they are split, while the wood is green, and put into piles to season.

Splitting Puncheons.—250 broad puncheons, 4 and 5 feet in length, is the task for a negro to split per day: such as would answer for a negro house and other out-buildings.

Splitting Shingles.—In splitting cypress shingles 22 inches long, 4 hands are sent out, as above stated; two to cut down the tree, and cross-cut to the length, one to bolt, and the fourth to split one thousand shingles. The next day, a negro will draw 500 per day as his task. In splitting for negro houses, he will split 700 broad, heavy shingles 2½ feet in length. In drawing 400 is the task.

In shingling a house with shingles 22 inches long and nailed. The task for a carpenter is ten feet square, in which are contained five hundred shingles.

Squaring Timber.—A negro carpenter can cut down the tree and square one hundred feet per day, with ease.

Making Worm Fences.—The rails being brought to the spot, and every thing ready, the bushes and weeds removed. A negro man and woman can put up, stake and ride one hundred pannels.

Splitting Rails.—One hundred rails, of 12 feet in length, and heavy, is the day's work of an able bodied negro man.

Post and Rail Fence.—Four Negroes can put up 30 or 40 pannels of post and rail fence per day, dig the holes between two and three feet deep, and put down the posts, properly rammed, at the distance of 9 feet from each other. The rails to be 10 foot long, to allow a good lap or hold in the mortice. A negro carpenter can make 60 mortices per day in the post and rail fence.

Cutting Wood.—A negro man can cut for his task, per day, one cord of wood, 8 feet long. The cord when piled and well filled in, to be 8 feet long, 4 feet wide and 4 feet high.

Sawing Timber.—Two able bodied negro men can pit the timber and saw one hundred square feet per day, with ease, and keep their saw in order.

ART. LXXXVII.—*Letter to the* EDITOR, *containing Queries on the rearing of the Silkworm, and mode of the culture of the Silk.*

"Athens, (Geo.) June 7, 1833.

Dear Sir,—I have a few queries to make on the subject of the silkworm and culture of silk, which I hope you will answer either privately, or through the medium of your paper.

1st. Is not the climate of South-Carolina and Georgia favourable to the culture of silk, and are not the climatorial advantages which they possess, equal, if not superior, to the silk growing districts of France or Italy?

2d. The common black mulberry is almost uniformly found in rich alluvial soils, on the banks of streams, and the locks of fences, as a ford for the silkworm. Hence it is too watery and contains little of the silky principle compared with the white mulberry, raised on ground opposite and more of a favourable nature. The experiments which have been made with the black mulberry, have been made when the tree was found in its natural and wild condition?

I have cocoons from the white tree, and others from the black, both growing near each other in the same soil. I can detect no difference whatever, either in appearance before or after reeling.

3d. Is it not probable that the black species, (the *Morus niger)* would by proper cultivation, be as suitable for the growth of silk as the white?

4th. Would not raw silk skilfully reeled, find a ready market in Charleston, or any of the Atlantic cities?

An answer to these queries would be gratefully received, as I have determined on giving the cultivation of silk a five year's trial, or more, if a reasonable prospect of success is afforded by the experience, I hope I shall gain by that period. I have about sixty acres of ground planted in the *white* mulberry. I have this year raised fifteen thousand worms. I calculate on raising five hundred thousand next year. Any information in relation to this business, will, of course, be acceptible to me.

There is no market for cocoons in Charleston, but there is one in Baltimore and another in Boston. We hope some of our readers will reply to the Queries.—*Ed. So. Agr.*

PART II.

SELECTIONS.

ART. LXX.—*The Difference between the Old and the New Methods of managing Yard Dung; by* ONE OF THE NEW SCHOOL.

[From the New-York Farmer.]

In the June number of the Farmer, you have published, Mr. Editor, Somerville's directions for managing a dunghill, and have superadded your own opinion, that "manure remaining any *considerable time* trodden down in *excess* of wet, is very destructive to its nutricious properties." Although your opinion is guarded with yankee caution, and may be construed to mean one thing or another, yet it is obviously intended to give a preference to the old over the new system of managing manures, of applying them in a rotted, and not in an unfermented state, to the soil. As this question involves considerations of deep interest to the farmer, I propose briefly to point out the difference, in point of profit, between Robert Somerville's method and that which is recommended by "distinguished agriculturists."

Robert Somerville was a surgeon, and for a time an agricultural editor, in the last century, and died thirty years ago. His system of managing dung was the popular one at his day; and he, probably, had about the same opportunity of testing his theory by practice that the editor of the New-York Farmer now has. The object of Mr. Somerville's plan is to *promote fermentation*, or in other words to hasten the rotting of his dung, ere he considered it fit to apply to the soil. The fact was not then accredited, but has since been amply demonstrated, by science and practice, that in this rotting or fermenting process, dung loses fifty per cent., or one half, of its fertilizing properties, and that if the process of fermentation takes place, as it readily will, if applied broad-cast, in our tillage grounds, during our ordinary summers, this fifty per cent. which is wasted in the yard or stercorary, is

retained by and fertilizes the soil. In other words, that a given quantity of dung will enrich a field twice as much, when rotted in the soil, as it will when previously rotted in the yard or stercorary. Hence the study, in *modern* days, has been to *save* this better half of the dung, by keeping back, or retarding fermentation, until it is buried in the soil. Hence the hollow yards, the retention in them of water, and the treading of the mass, by cattle, pigs and poultry, *to keep down the temperature*, and to *prevent the access of air*—heat and moisture being the agents of putrefaction. I verily believe that a mass of manure, accumulated during the winter months, and applied as it should be to the summer-hoed crops, is fifteen per cent. better for being trodden in the yard, by the cattle, and well saturated with moisture, because these *prevent* fermentation. What it was Somerville's object to *promote*, it is our object to *prevent*. Hence the marked contrast between the old and the new method of husbanding the food of our plants. He wished the process of digestion to be conducted above ground, when the atmosphere took the volatile half; we wish this process to go on in the soil, when the volatile half is arrested, and retained for the wants of the crop. It was the old practice, and is yet the practice with many, to boil tea and coffee an hour or two, to make it strong and go farther. Now it is well known that the boiling process dissipates the aroma and very much of the essential flavour of both. The gasses disengaged in the fermentation of the dung are to the plant what the aroma of tea and coffee are to man.

Mr. Somerville's plan of a dunghill is excellent under the old system, because it saves a *part* of the loss which would otherwise ensue from fermentation; yet it does not save the better—the gaseous part. And the fact should not be concealed, that the greater the mass under the influence of heat and moisture, the more violent the fermentation, and consequently the greater loss in nutricious matter.

To afford the practical farmer an opportunity of testing the value of the two modes of managing manure, if he has doubts on the subject, I recommend that he carts, say ten loads, next spring, from his barnyard, where it has been trodden on, to half an acre of his corn or potato field, spread and plough it in while wet, and take other ten loads to a roofed dung-pile, to undergo the fermenting process during the summer, according to Mr. Somerville's plan: and in September, let him take his ten loads, or the moiety that remains of it, and apply it to half an acre of wheat, adjoining the corn or potatoes already dunged, and sow the whole acre with wheat. Now I venture to say that the ten loads which have fed his corn or potatoes, and doubled their product, will do as much good to his wheat, nay more, than the ten loads which have lain in the roofed dung-pile, undergoing

the digestive process, without fertilizing aught but the atmosphere.

ONE OF THE NEW SCHOOL.

Remarks.—We have too much respect for the writer of the above to retaliate relative to our respective situations for obtaining practical information. If he is more eligibly situated, we shall expect him to decide by experiment before we shall, whether "manure remaining any considerable time [six to nine months, laying aside our 'yankee caution,'] trodden down in excess of wet [or ponded,] is very destructive to its nutricious properties." We shall not be satisfied with his "I verily believe," but must have experimental proof—*quod erat demonstrandum.*

Our remarks at pages 168 and 176 are wholly confined to the subjects of water remaining a considerable time on the manure, and of a wall protection around the manure, consequently the assertion that we "obviously intended to give a preference to the old over the new system of managing manures—of applying in a rotted, and not in an unfermented state," is entirely gratuitous; and the contrast drawn by the writer between the knowledge of scientific men in Mr. Somerville's time and that of modern days, implies a forgetfulness of the brilliant discoveries then, and previously, made in chemistry, and of the spirit that was excited in applying these discoveries to the operations of nature. Mr. Somerville's essay clearly proves that he was well acquainted with chemical changes which take place in manure; and admitting that his doctrine is contained in the two following extracts from his essay, "One of the New School" cannot, with modesty, claim the above hollow yard system as exclusively that advocated in modern days. Mr. Somerville says it is of the utmost importance to have "dunghills so situated and constructed as to promote fermentation, and preserve the useful particles contained in the dung, *both while the process is going on and after it is finished*," and the "manure may be increased by laying a layer of earth, leaves of trees, or any other suitable substance, on the bottom; and similar layers may be laid throughout the dunghill, the moisture passing through them, the same being returned from the reservoir, will completely saturate them; the entire will undergo a fermentation, and produce a vast quantity of manure." On the supposition that the above extract, without any reference to the economy of his mode, contain Mr. Somerville's doctrine, we confess we give it the preference to that of allowing the manure to soak in rain water, and the liquids of the yard for half the year, and then applying it directly to the land, for the following reasons:

1st. There is a greater certainty of the crops being benefited. Certainty is of great importance in farming.

2d. It is more easily applied, and more uniformly incorporated with the soil.

3d. The action on the crops is immediate, and when the soil, or the materials used in the compost, are of a nature retentive of the gases and salts, and of moisture, the fertilizing properties are by no means exhausted, on the first or second crop. The rains dissolve the gases and salt, and bring them into contact with every particle of the soil.

4th. The quantity is very greatly increased, without *any loss* of the original quantity made in the stables and yards.

5th. It promotes industry in accumulating substances for manure. There are many substances that are valuable when fermented in the compost heap, that are injurious or of no service when applied in an unfermented state.

We have objections to the soaked and unfermented manure for the following reasons:

1st. There is reason to believe that an injurious effect is produced, from the fact that the colour of the straw, and other vegetable substances that have been so long soaked, is changed; and that similar substances rotted in water without fermentation, are very difficult, or cannot be made, to ferment.

2d. The coarseness of the manure renders it almost impossible to cover it to that depth which will give it the requisite portion of moisture and air to produce a uniform fermentation. A part will be too deep; some very slightly covered will ferment and have a great portion of its gasses carried off with the evaporated moisture.

3d. The time of its action or fermentation is uncertain, depending very much on the heat, dryness and wetness of the season; and applied to some crops, to corn in the hills, for instance, it is beneficial or injurious according to the season. In ploughing corn or potatoes this coarse manure is often brought to the exposure of the sun, consequently its use in this state is an unscientific or random method of farming.

4th. It is a very great source of noxious weeds, and of diseases to the grain. A farmer who is careful to destroy every injurious plant on his farm before it goes to seed, may, by keeping a friend's horse over night, by introducing to his yard stock from other farms, or in buying hay or seed grain, sow that which will cause him much trouble, and give him a smutted field of wheat.

5th. When coarse manure is applied in the spring, if the weather is cold until June or July, and then suddenly become hot, the fermentation is very rapid, tending, particularly if dry weather succeed, to overheat, and produce sickliness.

Let none of our readers suppose that in giving preference to the compost system, that we disapprove of the plan of collecting the manure in the centre of the yard, compared with the slovenly practice pursued by many farmers of suffering it to be repeat-

edly drenched and more or less fermented in the yard, then carted out into a heap, and left to ferment and waste its nutritive properties in the air. Over such a practice the centre-yard system has every thing to recommend it.

In reference to a wall or protection around the manure heap, the remaining subject of Mr. Somerville's plan which we recommended, we do not, upon reflection, think it would be any great improvement to Dr. Hosack's stercorary, which so well shades the manure and leaves it so lightly exposed. This would depend, however, on the height to which the manure is allowed to accumulate above the surface of the ground. But on the compost system, we deem a wall, or something that will produce shade, and at the same time protect it from dry and chilling winds, of importance. Independent of the reasons assigned by Mr. Somerville, for a wall, we should suppose the shade produced by it would tend to cause the manure to attract carbonic acid gas, a supposition at least apparently justified by the following *most modern* doctrine, "soil overshadowed by thick leaves is good, from its attracting carbonic acid vapours, and preventing their escape." (Pro. Rennie.) If the soil is enriched by the shade produced by such crops as potatoes and turnips, and exhausted by such crops as do not afford shade—if wheat thrives better when clover protects the soil from the sun, we should think manure, particularly compost, to be benefited by being carefully shaded.

This subject, fermented compost and unfermented manure, we deem of importance, and will cheerfully give insertion to communications.

ART. LXXI.—*On Gardening—No. 6; by* ALEXANDER GORDON.

[From the Genesee Farmer.]

Cropping.—In gardening operations it is very essential that a regular change of crops be attended to. It is an undoubted fact, that each sort of plant draws a somewhat different nourishment; so that after a portion of ground has been considerably exhausted, by yielding repeated crops of one variety of vegetable, another may be sown with advantage, without any enriching ingredients being added to the soil. Plants of different habits of

growth, strike to different depths in the soil; their roots also take a different direction, and unquestionably the fibres, or feeders of the roots, take up separate and peculiar constituents of the soil. The roots of vegetables have various characters, viz: they may be fibrous and tender, or fibrous and woody,—or bulbous, or tuberous. It should, therefore, be an invariable rule, never to plant in immediate succession plants which strike deep into the ground, nor plants which are perennial. The latter should be followed by annuals, and the former should be succeeded by plants which pierce but a little way under the the surface. Sir Humphrey Davy has given a very satisfactory *rationale of rotation.* He says: "It is a great advantage in the convertible system of cultivation, that the whole of the manure is employed, and that those parts of it which are not fitted for one crop remain as nourishment for another." Hence the absolute necessity of sowing and planting, every year, each compartment in the garden, with a vegetable as different in form and habits as possible, from that which occupied the same ground the preceding year. Judge Buel, of Albany, has explained this, in a former number of the Farmer, in regard to his crop of onions, of the past season. I had repeated opportunities of examining the Judge's crop, and I have no hesitation in asserting, I never saw a crop of onions, in this or any other country, which would bear a comparison with his, by at least 25 per cent. Next to the *rotation* of cropping our gardens, I consider the

Selection of proper Sorts of vegetables to deserve our attention. I do not know that I can illustrate this subject in a better manner than by alluding to the *potato*, which is universally admitted to be one of our most valuable vegetables, yet one which, as respects *sorts*, has, until a very recent period, received but very little attention in this country. To such an extent has indifference on this point been allowed to exist, that many *foreigners* have considered, that no good potatoes could be grown in the United States. (Truth compels me to include myself among the number.) I had repeatedly traversed various sections of this country, before I met with a potato which would at all bear a comparison with those sorts which are esteemed in Europe as being only of second rate quality. But on my arrival in this State, in the month of November, 1831, I was agreeably surprised, with finding on the dinner table, a sort of potatoes which I had seldom seen *equaled*, certainly not surpassed, by any. As this occured when with one of our first rate rural economists and most successful agriculturists, I wast anxious to trace to its source the cause of this novelty, to me, in the United States. The answer to my inquiries was as follows: "Most of our potato growers grow for *quantity*, the *quality* being but little considered in market. I grow a good sort because I *grow for my own use*." The *grower* of vegetables, for sale, cannot be censured

for cultivating such sorts as sell best; consequently the *purchasers* are to blame if our market are supplied with inferior articles. If size is to be the criterion, highly flavoured vegetables must not be cultivated; for it rarely occurs, that size (that is, the largest size and best sorts) and quality are combined in the same vegetable.

In estimating the sorts of potatoes, two circumstances must be had in view—their precocity and tardiness—those being the distinguishing characteristics in the selection of this vegetable, as regards their use, at proper seasons. As regards the varieties to be chosen, quality, form, size, and colour, will, of course, be taken into consideration. In this vegetable, the varieties are so very numerous, which arises from the facility of procuring new sorts from seed, and also, because any variety cultivated for several years in the same soil and situation, acquires a peculiarity of character or habit, which distinguishes it from the same variety, this renders it a difficult matter to give any definite data, by the names assigned to this vegetable. When the sorts can be had true, the following may be reckoned as the most esteemed.—First, those for earliness:

Royal Dwarf—a mealy potato;
American Early and much esteemed sort;
Early Ash Leaved—very good;
Fox's Yellow Seedling;
Early Manchester.

The above are not of the best quality, their earliness being their only recommendation.

For late sorts:

The Champion;
The Red Nosed Oval;
The American Red;
The Nonesuch;
Lancashire Pink Eye;
Black Skin;
Red Apple—keeps the longest of any;
Bread Fruit—(which I have not seen for fifteen years;)

Are the sorts I would prefer for general cultivation, for families,—as being best adapted for furnishing the table with the best varieties, at the respective seasons of their maturity.

Very respectfully,

ALEXANDER GORDON.

Rochester Nursery, April 16, 1833.

ART. LXXII.—*Account of the Embankment and Cultivation of the Shirley Swamp; by* HILL CARTER.

[From the Farmer's Register.]

"Shirley, June 26, 1833.

Mr. Editor,—Agreeably to your request I have examined my journal, and find the following results from reclaiming eighty-five acres of swamp land at Shirley. The swamp was heavily covered with gum and ash trees, and overflowed twice every day by the tide water at the flood, but left free from water at the ebb tide. The land was reclaimed in the year 1825, by contract, at the expense of $1.25 per running yard, for the dike, in the following manner. In the first place, a way about fifty feet wide was cleared on the line or route for the dike, and then a ditch about three feet wide, and two feet deep, was dug throughout the course, for the dike to be run upon, to keep it from leaking underneath. The dike was then commenced at low tides, by digging pits in the most convenient places on the outside of the line of the dike (and only on the outside, and never nearear the dike than 20 feet,) and loading wheelbarrows with the mud from the pits, which were rolled up to the dike on thick planks, and then deposited in a rough shape, until the whole line or course of dike was gone around, so as to give the mud time to settle and dry. The dike being seventeen hundred yards long, sixteen feet at base, four feet at top, and six feet high, it took about five months to go round it the first time, by which time it had settled so much as to require nearly as much mud the second time of going around as to the first, to get it to its required size. On going round it the second time, the creeks (three in number) were stopped out as they came to them, by driving down four rows of large piles, or poles pointed at one end, and placed close together, quite across the creeks, so as to keep the mud from washing away as it was thrown in. The base of the dike at the creeks was fifty feet, and the dike made much higher and wider at the top than the other parts, to allow for the greater settling. After all the creeks were stopped, and the dike completed, a trunk, with a floating valve,* made of very thick pine plank, was put down at the highest side of each creek, about twenty feet from

* The trunks to let off the rain water, or any water which collects on the reclaimed land, are made in the following manner. For a dike sixteen feet at the base, take two pine planks, twenty-six feet long, fourteen inches wide, and two inches thick at least (three would be better) for the sides of the trunk: then with plank of the same thickness sawed into lengths of twenty-two inches, nailed on the bottom and top of the side planks, with close joints, make a trunk, leaving one end open and the other closed. Then about four inches from the closed end of the trunk, on the top, cut a hole eighteen inches long, and twelve inches wide, to let the water through. Place a valve or door on the underside of the hole of the trunk, four inches wider and four inches longer than the hole,

the creek, with a ditch leading to the creek, to let off the water at low tide, but exclude it at high tide. The cost of dike, trunks and all, was $2,167.50. The winter of 1825–26, I cleared fifty acres of the reclaimed land, by cutting down the trees, and burning them in heaps, but did not grub up the stumps.* The spring of 1826, I merely listed up (very imperfectly) rows six feet apart, with the grubbing hoes, just wide enough to get earth to cover the corn, but did not pretend to grub up the large stumps or roots, even in this list. From the 12th to the 20th May, I planted the fifty acres in corn on the feet six lists, two feet apart, as near as we could come at it, considering the rough state of the land: and on thinning out the corn, left three stalks in the hill. It produced a very heavy crop of stalks and a good crop of corn, considering the rough state of the land; the fodder fired before we could gather it all. The crop produced, as by journal, three hundred and eighty barrels of merchantable corn, and sixty-five of short corn fed to hogs. This crop was sold in the spring of 1827, at $3 per barrel, being $1140, besides the hog corn and some fodder.

The winter of 1826 and '27, I cleared the balance of reclaimed land, and in the spring of 1827 listed it in the same manner as last year, and planted the whole eighty acres† in corn, about the same time in May as last year—and had the promise of a very heavy crop of corn, until the storm of August 26th broke the

and close it, when the water is higher on the outside than the inside; but when the water is higher on the inside, it will sink by the pressure of the water, and let it off from the reclaimed land. The valve or door is kept from getting out of the trunk by a perpendicular pin, put through the top and bottom of the trunk, and near enough to the hole to make the valve rise just under it, and close it. The valve or door should be made of two pieces of plank pinned together, one on top of the other, with the grain of the wood of each crossing that of the other, to keep the valve from splitting.

The trunk is then placed in a ditch cut through the dike to receive it, about half a foot below low water mark, to keep it always immersed in water, (which keeps it from rotting,) with the valve end on the inside of the dike, and the open end on the outside of the dike.

* It is much better, I think, not to grub up and burn the stumps and roots, on first clearing swamp land, except in the list where you plant the corn, for several reasons. In the first place, it reduces the surface very much, which is very desirable should not be done. In the second, the stumps and roots keep a great deal of the ground from putting up in grass and weeds, and save that much labour in weeding, and third, the stumps and roots rot much sooner in swamps than in highland, and you get rid of them soon enough without the endless labour of grubbing them up. They will all disappear in four or five years, where the land is cultivated every year; and the land will not require bedding sooner than that, as it does not sink much until the stumps and roots decay.

† Five acres of the area was at all times lost by being covered, or kept too wet, by the small creeks; so as to leave the whole quantity fit for cultivation, eighty acres only.

dike in three places, and overflowed the reclaimed land, and apparently destroyed the crop of corn. I was at the mountains, and my overseer despairing of saving any part of the crop, did not pretend to repair the damages. But as soon as I heard it, I hastened home, and when I arrived, the tide had been flowing in and out for ten or fifteen days, and it required twenty days to repair the damages, (which was done with the plantation hands,) so that the corn had been subject to the tides for thirty days at least, and I was afraid was ruined; but fortunately the crop was matured before the storm, and all that stood up was saved—and I made about half a crop.

Crop made this year, as per journal—merchantable corn four hundred and eight barrels, and so much unsound corn that we did not pretend to measure it; fed some of the best of it to hogs; balance made manure of. Crop sold for $2 per barrel—amount $816.

I now found that the dike had settled, or sunk so much that it would not do to risk another crop of corn upon the reclaimed land, without raising it; and with my plantation hands, I raised the dike one foot higher during the winter of 1827 and '28.

In the spring of 1828, planted in the same way, and about the same time in May as last year, seventy acres of the reclaimed land in corn, and ten acres of the driest part in cotton. We had a very wet summer throughout, and made a short crop of corn on the reclaimed land, in consequence; and nearly a total failure in cotton. Crop, as by journal, made on this land this year, four hundred and fifty-four barrels of merchantable corn, fifty-four good short corn fed to hogs, and a great deal of rotten corn. Cotton made, only six hundred and twenty pounds, picked or net cotton. This crop of corn sold for $2.40 per bushel, making $1089.60; and cotton was worth, I supppose, ten cents the pound, (though that was used on the plantation,) which, added to the corn, amounted to $1151.60. The dike now had so much sunk or settled, that we had to raise it again this winter a foot higher all round. The reclaimed land had also sunk a little, and the stumps were disappearing by rotting.

In the year 1829, cultivated reclaimed land, as usual in corn, except that we only left two stalks in the hill to try to prevent the fodder from firing, which has always taken place before we could gather it all, but still it fires too soon for us. Made a very good crop of corn this year, seven hundred and sixty-three barrels merchantable corn; seventy barrels short, but sound, fed to hogs; some twenty or thirty barrels of rotten corn, besides the above—price of corn this year $1.80 per barrel; value of swamp corn $1373.40. As I have neglected to mention the mode of cultivation, I will now do it. My reclaimed land is too low and wet to plough, except ten acres on the margin of the highland, so that we have to cultivate all of it except the above ten acres, en-

tirely with hoes, which is done in the following way: The land is laid up every winter in six feet beds, with hoes, and well ditched and water-furrowed from one end to the other, so as to make it dry as possible. We plant it as soon as possible in the spring, (which is generally, the last of April or first of May,) two feet between every hill on the six feet beds, thinning out to two and three stalks to the hill. We begin to weed the corn broad-cast as soon as any grass or weeds appear. We generally get over it twice before harvest, and then the growth of corn is so rapid that it overshades the land, and keeps the grass and weeds under, so that the cultivation of this sort of land is much less laborious than any one would suppose from not being able to use the plough, provided you begin to weed as soon as any grass or weeds appear: but if you let them get the start of you, you may bid adieu to your corn, for all the hoes in Virginia would not save it.

In 1830, begin to plant corn on reclaimed land on the 20th April, and finished on 30th; cultivated as usual; we had a wet season, and bad for a swamp land. Crop made this year, by journal, five hundred and fifty barrels of merchantable corn; seventy barrels of short corn fed to hogs; and fifty of rotten corn. I will here remark that this kind of land always has much more short and rotten corn than highland, and never turns out so well as the appearance of the crop, while growing, would induce you to suppose. I have often been told by persons who saw the crop while in the tassel, that it must make eighteen or twenty barrels to the acre, so luxuriant was the growth; but the best crop I ever made, was ten barrels and a half to the acre. But the beauty of this land is, that it will last forever without manure, provided you keep the water off; and if ever it sinks to low water mark, which I believe it will, after a long while, why we can but use the pump as they do in Holland. It was now sunk about eighteen inches. Price of corn in 1830, $3.70 per barrel, and value of swamp corn $2035.

In the year 1831, cultivated reclaimed land, as usual, except that we planted the corn earlier in April than before—and just as it was all up, on the 27th April, we had a violent N. E. storm, with high tides, which broke over the dike, and swept every thing; corn all destroyed—dike made a wreck of—and I was very near giving it up in despair, and in fact did give orders to break up some high land instead of it, but after awhile thought I would make another trial. Went to work on the dike, and by the 17th of May stopped out the water again, and began to plant corn a second time. The corn came up, and stood very well, and I thought we had as good a prospect for a full crop as before the storm; for, by 30th May, we had completed the repairs to the dike, and began to weed the corn, at which time it looked beautiful. The second day after we began to weed, the corn began to disappear, and by the fourth day every plant was gone. The caterpillars,

or a worm very much like them, (somewhat smaller,) had eaten up every plant in the eighty acres, except a small corner of the reclaimed land, about two acres, where, on the subsiding of the flood, all the trash had floated to the thickness of four feet, and we had to burn it off before we could plant that corner. That part escaped the caterpillars entirely, their eggs being burnt, I suppose. I cannot account for the caterpillars, as we never had them before nor since in our corn, though we have had a few once or twice in our wheat, but not to do much injury. As I was pretty well tired of planting for one year, I waited until the glut of worms, as I thought, was over, and two days before harvest, the 14th and 15th of June, I made a great push, working night and day, and planted the reclaimed land the third time. But it would not all do: the glut of caterpillars was not over; they were only concealed in the ground—and as soon as the corn came up, they again swept it off the face of the earth. After harvest, I thought it was too late to make corn in our climate, but determined to make the fourth trial, and began to plant on he 30th June. The caterpillars had turned into a kind of fly and disappeared, and we made about half a crop. Crop made this year on relaimed land, as by journal, of merchantable corn, three hundred and ten barrels; fifty-two barrels of short, or hog corn, and thirty barrels of rotten corn, caught by frost. Price of corn this year, $2.25 per barrel; value of swamp corn $697.50.

1832, cultivated reclaimed land as usual in corn, and had no rain from June 3d until 24th September, the most unprecedented drought ever known in this climate. The swamp land corn suffered from the drought, yet we made there two-thirds of a crop: four hundred and sixty-four barrels of merchantable corn: forty five barrels of short corn fed to hogs, and some rotten corn as usual. Price of corn this year, $3.25 per barrel; value of swamp corn, $1508.

Recapitulation of Products and Expense.

Years.	Product.	Sales.	Price per bbl.	When sold.
1826	bls. 380	$1140	$3 00	1827.
1827	408½	816	2 00	1828.
1828	454	1151 inc. cotton	2 40	1829.
1829	763	1373	1 80	1830.
1830	550	2035	3 70	1831.
1831	310	700	2 26	1832.
1832	464	1508	3 25	1833.
		$8723		

Cost of reclaiming land,	$2200
Interest for seven years on $2200,	923
	3123
Amount of sales for seven years,	8723
Balance,	$5600

The corn used for hogs, and the fodder, &c. are not included in this statement of products. The labour of cultivation and repairs, (of which no correct estimate can be made,) should be deducted from the foregoing balance $5600, to show the clear profit.

I ought here to remark that I have been obliged to add a foot to the height of the dike every year since it was reclaimed, and the year it was so wrecked, I had to add two feet, and yet the dike is now only one foot higher than it was first made—that is to say, seven feet, so great is the settling of the dike. The general surface of the land since reclaimed has sunk about eighteen inches.

I have not been as much annoyed by muskrats as I expected; from the circumstance, I suppose, of our constant attention to the dike, and the constant working of the hands during the summer, in the crop, and winter on the dike, so that the muskrats are scared off. A man goes all round the dike every day to see whether there are any muskrat holes, and marks them wherever he finds them; and every now and then we select a low tide, and cut them out, and stop them up carefully, which keeps them sufficiently under for all purposes. I think the swamp mud is better for making a dike that is liable to the waves of the river or creek, than highland earth, as it is much more tenacious and less apt to be washed by the waves: and when a muskrat cuts through the swamp mud, it never washes larger. I have known a hole which could not be stopped out, for want of time and low tides, remain the same size for months at a time, so soapy and tenacious is our swamp mud, and, but for its settling, it would be the very best material for dikes. When my dike was overflowed, if it had been of highland earth, or sand, it would have been all washed away—but the swamp mud stood it like wax, and only broke in the weaker parts. To future reclaimers of swamp lands, I would advise the leaving a very wide margin of land between their dike and the river or creek, to furnish mud to repair and raise these dikes with, as well as to break the waves off: and never to dig a pit or hole, nearer than thirty or forty feet (the farther the better) from the dike, as all pools or holes of water near the dike attract muskrats. Also never allow any earth or mud to be taken from the inside of your dike, as that is ruinous—for if you have any sink in the inside, the water will re-

main in it frequently, and will attract the muskrats; for wherever there is water, they cut a hole through the dike to communicate with it. The greatest security against them is to have your reclaimed land free from water, on the inside at least—have no ditches near the dike if it can be avoided; but if you are obliged to have ditches, let them run perpendicular to your dike, and not parallel, so as to present the least surface of water, and thus offer as little inducement as possible to the muskrats to cut through the dike. Build the dike of the mud or earth from without, and take it as far off from the dike as possible. With good planks and wheelbarrows, it is almost as easy to take the mud from fifty, sixty, or one hundred feet, as nearer, and you will save by it in the end. The further off you go for the mud the better.

HILL CARTER.

Art. LXXIII.—*Saltpetre in Meat.*

[From the New-York Farmer.]

It is a matter of regret, that while so much salt meat is made and used, we have not yet acquired the proper knowledge of the best mode to prepare and preserve it; nor is it generally known how noxious salt meat may become by an improper use of saltpetre in the pickle or brine usually employed.

There are various modes of preserving salt meat and fish—by drying, salting, pickling, oiling, smoking, &c.; but I merely mean, at present, to notice some of the defects and noxious properties of our actual salt meat, either beef or pork.

One of the main defects appear to consist in the useless addition of saltpetre into the pickle, whereby the meat often becomes sour or spoiled, and always acid and pernicious. I never could understand why this substance was added to common salt in curing meat, except that it is said to make it look better. But it ought to be known that the part of saltpetre absorbed by the meat is *nitric acid* or *aquafortis*, a *deadly poison!* whereby our salt meat becomes unpalatable and pernicious. A slight excess of this acid makes the meat sour, or spoils it, as we say. It has been suggested to correct this by potash, which re-absorbs this excess, but merely hides the defect without neutralizing the whole poison.

Is it not surprising that we should feed and deal, as a staple of our country, with an article containing a portion of such active poison as *nitric acid?* In fact our actual salt meats *are no longer meat!* They are a new pernicious substance, produced by a chemical action of salt upon the flesh of animals. This flesh when fresh and clean, consists chiefly of *gelatine* and *fibrine*. Gelatine or jelly, is the substance soluble in warm water, forming a broth by boiling or becoming a jelly by concentration, while fibrine is the fibrous tough part of the meat, which cannot be dissolved, and is, therefore, unfit for food, while gelatine is the real nutritious part of the meat.

But it is well known that salt meat, and even corn beef, can no longer afford a broth, and therefore gelatine must have been changed into another substance no longer soluble, nor so nutritious, by the chemical action of salt and saltpetre. To this new substance the chemists have, as yet, not given a name: but it is as different from meat, as leather is from the hide before it is tanned by the tan-bark or *tannin*.

To this chemical change in meat is to be ascribed all the noxious qualities of salt meat, and the diseases to which those who feed chiefly on it become liable—sea scurvy, land scurvy, sore gums, rotten teeth, boils, ulcers, &c., which we entail on ourselves by using a kind of poisoned bad meat, which we call salt.

This important and doleful fact ought to be well known, or made known, generally, to all those who raise cattle, cure meat, or eat it, in order that they may correct this sad defect.

The first thing to be done, is to abandon altogether the use of saltpetre in curing meat. This is indispensable, and no one who is told that aquafortis is the produce of it, ought any longer to use this poison in pickles or brines.

The best substitute for it is *sugar:* a small quantity added makes the meat healthier, sweeter, nicer, and equally durable. Let this be known to all our farmers and sailors.

How to make a brine for meat perfectly innocuous, is yet a desideratum. Gateline ought to be preserved in salt meat perfectly pure and soluble, as it is in broth cakes, before any salt meat can be perfectly healthy and equal to fresh meat. But at any rate, by withholding the saltpetre, we divest it of a deadly poisonous substance.

C. S. RAFINESQUE,
Prof. His. and Nat. Sciences.

Elm Place, Lansinburgh, N. Y. August 5, 1833.

ART. LXXIV.—*Saltpetre in Meat, in reply to Professor Rafinesque; by* MEDICUS.

[The following communication came to hand after the Farmer for October was wholly in type; but as it is a subject of much importance, and especially during the fall season, we give it, to the exclusion of other matter, that our readers may avail themselves of its benefits. Further communications on the subject are solicited, from those whose researches are able to throw light upon it.—*Ed. N. Y. Far.*]

Messrs. Editors.—It is with no small degree of surprise, that I observed in your paper, a communication from Professor Rafinesque, in which the use of saltpetre, for the purpose of preserving meat, is condemned in the strongest terms. A communication from such a source will be received by a great mass of the community as fact, without inquiring whether it be so or not; and as the article in question is most palpably erroneous, I feel it to be due to the public that its errors should be exposed. In the first place it is stated that "the part of saltpetre absorbed by the meet is *nitric acid*, or aquafortis, a deadly poison," than which nothing can be more erroneous. If Professor Rafinesque can decompose *nitrate potassa* (saltpetre or nitre) by means of animal muscle, he has gone one step further in chemistry than any other person. On the same principle may we say that common salt is decomposed, and that the part which enters the meat is muriatic acid, as powerful a poison nearly as aquafortis. Mr. Rafinesque states that he "never could understand why this substance was added to the common salt in curing meat, except that it is said to make it look better." As this is not the object of the nitre, I will briefly state its use. By the addition of a small quantity of it, the meat is prevented from absorbing a far greater amount of common salt, while, at the same time, it is equally as liable to "keep," and in consequence of this diminished quantity of salt, the meat is rendered more tender, and retains its original sweetness to a far greater degree than it otherwise would. I would not, however, recommend a large quantity of saltpetre, as it would thus prove injurious instead of beneficial. About four ounces to every 100lbs. of meat will be amply sufficient. At the same time a small quantity of refined sugar will materially add to its sweetness.

The very respectable source of the communication referred to above has induced me to be somewhat more lengthy in my remarks than I otherwise would have been, but I trust that the importance of the subject will be a sufficient apology.

Yours, &c.

MEDICUS.

Art. LXXV.—*On Fattening Swine.*

[From the N. E. Farmer.]

According to the opinion of the Rev. Mr. Elliot, the best time in the year to shut up hogs to fatten them, is the month of August. I rather prefer the month of September, when it may be depended on, that they will not suffer at all by the heat in their confinement; and there will be time enough to make them fat, before the weather becomes to be exteremely cold.

He that attempts to fatten his hogs in winter will be a loser; for it has been found by long experience that they do not gain in their flesh near so fast in a frosty, as in a temperate season. I therefore take care to get them fit for the knife by the beginning or middle of December, and I should choose to kill them still earlier, were it not for the advantage of keeping the lean part of the pork for some time without salting; as it most commonly may be done by exposing it to frost, in the coolest part of the house.

But a very important question is, what food and management is best in fattening swine? Peas answers well, when the price is low. But I am constrained to give the preference to Indian corn. Let them be fed in September with green ears from the field. There is nothing they will devour more greedily than this corn, and even the cobs with it.

In Indian harvest, the unripe years should be picked out and given to the hogs that are fatting, without delay; or as fast as they can eat them; for it will do them four times as much good in this state, as it will after it is dried, it being difficult to dry it without its turning mouldy or rotten; so that they will scarcely eat any of it in this state, unless they be kept shorter of food than fatting hogs should be.

After the unripe corn is used that which is ripened must be given them.

If it be thought most convenient to feed them with corn of the preceding year, it should not be given them without soaking, or boiling, or grinding it into meal. For they will not perfectly digest much of the hard kernels; it being often too hard for their teeth. It has been thought by good judges, that the corn will be at least a sixth part of more advantage to the swine for soaking it in water. But there is, if I mistake not, still more advantage in grinding it. What new corn is given them, may be in ears, as it is not hard enough to grind. I know of nothing that will fatten hogs faster than a dough of meal and water. But as this is expensive food, the dough may be mixed with boiled potatoes, or boiled carrots. They eat these mixtures as well as

dough by itself; and it appears to make no material difference in their fattening. In this mixture, barley meal will answer instead of Indian; which should be attended to in our northern parts, where two bushels of barley may be as easily raised, as one of Indian corn. Both kinds of meal I have found to be a good mixture with boiled potatoes; but it should by all means be a little salted to give it a relish.

While hogs are fattening, little or none of the wash from the kitchen should be given them. Their drink should be fair water, which they relish better than any other drink, and of which they will drink a good deal, when they are only fed on corn, or stiff dough.

To prevent measles and other disorders in hogs, while they are fattening, and to increase their health and appetite, a dose or two of brimstone, or antimonny, given them in their dough, is useful, and should not be neglected.

Some change of food may be advisable, in every stage of their existence, as it always seems to increase their appetite. But while they are fattening, laxative food in general should be avoided, as these animals are seldom known to suffer by costiveness, especially when they are full fed, but often from the contrary disorder. If they chance to be costive, a little rye will help them.

In feeding, steady care should be taken that not one meal should be missed, nor mistimed, and their water should never be forgotten. They should always have as much food as they will eat up clean, but never more than than quantity, lest they defile it and it be wasted. A little at a time and often, is a good rule.

If their skins be scurfy, or inclining to manginess, a little oil poured upon their backs, will cause it to come off. And some say a small mess of rye now and then, as a change in their food, is good, against these and other disorders.

If the issues in the fore legs should chance to get stopped, every attempt to fatten them will be in vain. These, therefore, should be watched; and if found to be stopped, they should be rubbed open with a corn cob.

Rubbing and currying their hides very frequently, is of advantage to keep up perspiration. It is grateful to the animals, as well as conductive to their health and growth. A proper scrubbing post in the middle of their pen will not be amiss. And during the whole time of their fatting, they should have plenty of litter. They will lie the more dry and warm, and it will be more than paid for, by the increase of good manure.

When hogs are killed, a single one should not be left to live alone in a pen. He will be apt to pine too much after his former companions. And in cold weather he will suffer for want of lodging so warm as he has been accustomed to do.

The fat pork should be plentifully salted with the best and strongest clean salt. It will take three pecks for a barrel. The pork should be kept continually under pickle; for if it be exposed ever so little to the air, it will become rusty and unpalatable.

Boiled or steamed clover hay will serve to keep hogs during winter, but the addition of potatoes or carrots, boiled or steamed with the hay will be an improvement.

Mr. Young directs soiling swine in a yard in preference to feeding them on clover in the field during summer. But Judge Peters, of Pennsylvania, says, "in summer my hogs chiefly run on clover. Swine feeding on clover in the fields will thrive wonderfully: when those (confined or not) fed on cut clover will fall away." The same gentleman asserts that hogs, while fatting, should constantly have some dry rotten wood, kept in the pen, which they will eat occasionally, and it proves very beneficial to them. It is also declared, as well by that gentleman as other writers, that food when soured by a proper degree of fermentation, is much the best for fattening swine, and that one gallon of sour wash will go as far as two of sweet for that purpose. Mr. Young says, that the best method of giving all kinds of grain to hogs is to grind it fine and mix it with water in cisterns for that purpose, at the rate of five bushels of meal to a hundred gallons of water. **DEANE.**

Art. LXXVI.—*On Procuring Pure Water; by* P. Moser.

[Selected from the South-Carolina Journal.]

An account of the proceedings of the Commissionersof "Water Works," appointed by the City Council, for the Procuring of Pure Water; communicated by P. Moser, M. D. to the Editors of the Carolina Journal.

Gentlemen,—The City Council of Charleston, under an Ordinance passed on the 13th day of August, 1819, proceeded to the election of Commissioners of Water Works in March, 1823, when P. Moser, M. D. John Strohecker and F. Wesner, Esqs. were elected. They commenced their operations of boring the earth in search of pure water in the lot attached to the Poor-House, on the 9th of April, 1833, and continued amidst difficulties that appeared insurmountable at the beginning, until the 9th of June, 1824, when they had penetrated the earth from its surface to the depth of 335 feet 4 inches, without obtaining the

fountain of water expected. The lot on which the experiment was made is computed to be about six feet above the level of the ocean. The following is a summary of the stratas.

The first seven feet presented the common yellow sand and loam, thence to the depth of 19 feet quick sand, making a most formidable resistance to the augur. Next foot, red clay, making 28 feet, thence to 22 feet, shells of various kinds and oysters, clams, concks, and all the varieties of small shells usually found on the sea beach, with somy sand. From 22 to 27 feet, a bright blueish coloured mud with a small mixture of red clay. Thence to 35 feet, a firm and very tenacious blue coloured clay, which on burning became the colour of the grey brick, From 35 to 41 feet, blue mud, sand, and various shells. From 41 to 43 feet, deep coloured blue clay, of very fine texture, and exceedingly tenacious; 43 to 46 feet, calcareous earth, shells, and white sand; 46 to 54 feet, there appeared by the sudden sinking of the augur, a fissure or separation of the stratas, soft mud and water and a little sand. 54 to 61 feet, blue clay, calcareous earth, and some decayed weed, so soft that it only could be ascertained by the appearance of its fibers. 61 to 67 feet, a coarse sand or gravel of a blue colour when moistened with water; it appeared to partake of the nature of quick sand, and evidenced the correctness of the conjucture, by making so much opposion to the sinking of our last iron tubes, (which were six inches in diameter, and four and a half inches in the bore) that for every inch they descended, it filled in the bore about three feet again to be bored out, this kept us at hard labour more than six months, when to the great gratification of the board of Commissioners, and relief of the labours, on the 12th of June, 1824, the pipes settled firmly at 67 feet, on a strata of olive coloured clay marle, which when heated became of a white colour, and so well preserved its arch as to render additional pipes unnecessary. The auger penetrated this strata with the greatest facility which did not vary from 67 feet, (its surface) to 223 feet 9 inches; here it appeared less tenacious, and on washing, gave out one-tenth part of very fine white sand. From 223 feet 9 inches to 253 feet, the strata the same nearly with one-eighth part sand. From 253 feet to 254 calcareous earth and small stones so solid that the augur was bent in penetrating it. From 254 to 263 feet white clay marle, here the augur rested on a hard carbonate of lime, which it could not penetrate, here also, fresh water forced itself above the surface two feet, evidencing a new spring, and the hopes of the Commissioners were elated, but whether its course became changed on penetrating the lime strata, or it was not cleared sufficiently, is uncertain, but in half an hour it again subsided five feet. 263 to 264 feet, solid carbonate of lime, which required a cast steel drill to penetrate 264 feet 3 inches to 266 feet 3 inches of mud, thence to 267 feet 3 inches in a

hard carbonate of lime, thence to 267 feet 3 inches a hard carbonate of lime, thence 270 feet 6 inches a soft carbonate of lime. From 270 feet 6 inches of carbonate of lime more hard than the last, particularly its crust or surface, but was penetrated by the augur alone. At 274 feet rested on a carbonate of lime, so hard that it required the united efforts of six men to turn the drill upon it, aided by a lever above the surface and relief of six men, who worked alternately one day before the drill broke through, its thickness was only six inches, but the drill sunk one foot deeper in a softer carbonate of lime. From 275 feet 6 inches to 279, a mixture of clay and mud, next a hard carbonate of lime only 5 inches thick. 282 feet 11 inches to 287 feet 4 inches clay and mud, thence to 289 feet 4 inches, a hard carbonate of lime as above. From 289 feet 4 inches to 291 feet 9 inches softened clay, lime and some sand, thence to 293 feet 4 inches, thick hard lime as above, balance same, but softer. 293 feet 4 inches to 295 feet 9 inches, crust 9 inches thick, remainder mixture of soft carbonate and mud. 295 feet 9 inches to 297 feet 6 inches soft lime, as above, thence to 300 feet 8 inches; first foot hard lime stone, balance mud; one small piece of the lime stone was here brought up with the augur, not having been acted on by the drill, remainder mud. 300 feet 8 inches to 302 feet, hard limestone. 302 feet to 308 feet 5 inches, soft carbonate of lime, next 6 inches hard crust. 308 feet 11 inches to 311 feet, soft carbonate and mud. 311 feet to 314 feet 3 inches, first foot lime balance a very tenacious clay and soft lime. 314 feet 3 inches to 317 feet 2 inches, shells marl, sand, clay, and some thick solid marine shells broken. 317 feet 2 inches to 331 feet, blue limestone rock. 331 feet to 334 feet, chalk, clay, mud, thence a solid limestone rock to 335 feet 4 inches, which was not drilled through, when in consequence of the cap-screw of the iron rods giving, being much worn, the rods were in part precipitated to the bottom, and until recovered, must prevent any further progress at least in this spot.

I forbear commenting on the above experiment, my sole object being the stament of plain facts, leaving them in the hands of speculative men of science. I will only add, that the greatest depth below the surface ever obtained in Charleston, previous to this experiment was only 54 feet.

P. MOSER.

PART III.

MISCELLANEOUS INTELLIGENCE.

Manure is Wealth.—In our intercourse with some of the farmers residing within forty or fifty miles from New-York, on Long-Island, we have been surprised at the instances related to us of the profitableness of farming. Some farmers known to have laboured and toiled hard have continued yearly to fall in arrears until they have commenced *buying* manure. Fifty-six cents are given per carman-load at the landing, for the apparent worthless dirt swept from the street. This applied at the rate of twenty loads produces wealth. The very farmers who could not obtain a living by using only manure made on their farms, have, in a very few years, not only freed their farms from incumbrances, but purchased others in addition, and are now, from the yearly profit of their farms, putting money out at interest. If then, it is found so profitable to *buy* manure, and be at the various expenses attending the carting, how very important is it to give special attention to increasing the quantity and improving the quality of that made on the farm. There is no question but that almost every farmer can double the quantity of his domestic or yard manure without scarcely any additional expense. It is thought too, that at least fifty per cent of the nutritive properties of yard manure are lost by drenching of rain, excessive fermentations, and injudicious application to soil. The more we consider this subject the greater does it become in importance, and justly regarded as the primary object in farming.—*N. Y. Far.*

To Produce Onions of a Large Size.—The Horticultural Register recommends the following method of obtaining large onions. When the beds are formed by the usual method, tramp them heavily, and roll them firmly. On this compact surface, sow the seed and cover it at the usual depth with a rich compost. The bulbs, instead of sinking will spread superficially to a good size, and ripen earlier.—*N. E. Far.*

Agricultural Thrift.—Gen. James Shelby of this county, sold a few days since, a flock of 160 mules, raised on his plantation, for the sum of $11,840 cash in hand. Fourteen of these mules were purchased by the agent of a gentleman of Cuba, and were sold for $130 each, making an aggregate of $1,820 for the 14.—*Lexington, (Ky.) Int. of 24th Sept.*

On Forcing Bulbs to cause them to Flower in Winter.—Being a constant subscriber since the commencement of the Register, I have, with several of my neighbours, hailed with pleasure, the first day of every month, feeling assured that your Magazine would bring us a fresh supply of important information, to add to our scanty stock of knowledge. I have sent for your insertion, if you think they merit it, a few remarks on my method of forcing bulbs, which I hope may be of some service to the more inexperienced portion of your readers.

Early in October, send for a quantity of Dutch bulbs, as narcissus, tulipa, hyacinthus, &c. and previous to doing so, provide a quantity of mold, composed of

Two barrows full of well decomposed hot-bed dung,
One barrow full of fresh loam,
One do. of vegetable or leaf mold,
One-quarter of a barrow full of fine sand.

These are to be well chopped, and mixed together; then lay the compost in an oped shen, to dry a little before using. About the second week in October, put the bulbs in the above soil, in pots proportioned to the size or sort of bulb. Fill all the pots with soil, and shake it down, but do not press it with the hand before commencing to plant the roots; then lay some some clear sand on the soil, in the middle of the pot, and placing the bulb on the sand, gently press it down till within half an inch of the top. Care must be taken not to press with sufficient violence to injure the bulb, yet it must be left firm in the pot; for on these two things much depends, with regard to their growing freely.

After they are potted, and named and numbered, place them in a cucumber or melon frame, prepared after the following manner: Take out the soil, and lay on the old bed about two inches thick of fine ashes, level and make them pretty solid, on the top of this lay a quantity of sifted ashes, in which plunge the pots, make the ashes as firm about the pots as possible. After this is finished, cover the whole to the depth of eight or ten inches with dry light soil. Always choose a dry day for the purpose, and let every thing be dry that is used about plunging; or the bulbs will be liable to perish. Give air at all times in fine mild weather, but allow no wet or frost to enter the covering soil: at nights, the lights must be always be on, and in severe weather closely covered down with mats; but if the nights are mild, the glasses may be tilted, to allow a little air.

In January, take them out of the frame, wash the pots, carry them to the stove for flowering: and give them regularly, a moderate supply of water, to assist them to flower strong. As the flower stalks advance in growth, tie them to neat green or white sticks; and if treated as above they will flower beautifully. Crocuses planted four or five in a pot, flower well when treated as above. I also beg to state, that Mr. J. Knight, of the Exotic Nursery, Chelsea, is supposed to sell as good bulbs, and as cheap, as any person in the neighbourhood of London. F. F. ASHFORD.

Mere Hall, Feb. 20, 1833.—*Amer. Far.*

Peas.—As all kinds of seeds and grain have a tendency to degerate when sown or planted a number of years on the same farm, unless particular pains are taken to keep the seed pure and clean. It is the duty of every farmer to take the utmost pains to cleau his seeds of every description, so as to counteract such tendency to degerate. There is no seed that I am acquainted with, that will degenerate more rapidly than peas. The process that I have pursued for two years with my seed peas, is simply sifting them in a sieve that will let through the small peas and the small seeds of every description, and leave the largest and best of the peas to sow. By this means my peas have improved at least twenty-five per cent in quality. I think it answers all the purpose of scalding to clean them of the bugs. By sifting them the bug or nit is shaken out of the peas and left with the rubbish, which is given to the hogs. I made my sieve by taking the fine sieve of the fanning mill and making a box of clapboards of such a size as just to admit the sieve—then made small cleats on the inside of the bottom of the box so as to hold the sieve in. By this means the sieve can be taken out at pleasure and the box saved for another year.

Hume, May, 1833.—*Genesee Far.* L. COUCH.

Growing Chrysanthemums.—I recommend their voracious and very fibrous roots to be parted in autumn, or early spring, and planted in very rich manured light soil, at the foot of a south or west aspected wall, with not more than one, two, or three branches from each root, trained to the wall as regularly and as thinly as a peach tree, cutting off all superfluous shoots and weak lateral flower-buds.

They must, when planted, be watered in the usual way, and afterwards all over their leaves, with a fine rose watering-pan, lightly, as a fine shower, as often as their foliage flags, quailing to the beams of a powerful sun, which will, sometimes, be three times a day in the hottest weather. This will quickly re-erect their drooping leaves, without scorching or blistering them, and cause these uncommonly slow-growing plants to advance with a degree of comparative rapidly, that is as pleasing as it is surprising, and their leaves will become twice as large as when treated in the usual way. The size of this foliage, too, as in bulbous and most other plants, will indicate the increase of size also in the expected but as yet invisible flowers; although in Succulentæ, and more especially in Ficoideæ, I should expect the reverse.

Thus treated, these conspicuous plants will reach the height of 3 or 4 feet in the smallest sorts, and that of 7 or 8 at least in the tallest kinds, terminating in abundant and most beautiful flowers, many of which will far surpass 5 inches in expansion, and with almost every colour, except deep scarlet, and the tints of blue.—*Loudon's Magazine.*

On Shortening the Tap Roots of Trees.—Dr. Schlechtendral lays down the following principles. 1. An injury to any one part of plant occasions a change in the natural devolopement of the other parts. 2. Roots and stems are always in a certain degree reciprocally proportionate to each other. 3. The tap roots does not form a part of every plant: but when it is so, it is an essential part of the plant. 4. By shortening the tap root, one or other of the following consequences will result: tender plants will be more easily destroyed by severe weather; all sorts of plants by dry weather, from their roots not being so deep in the soil: the wood of the timber trees will be less durable, their trunks shorter, and their heads broader and less high: and fruit trees will blossom earlier and more abundantly, and their fruit will be larger and better flavoured. 5. To transplant trees, without injuring their roots, is difficult in proportion to the age of the tree, and the extent of the roots. 6. All transplanting ought to be done when the trees are young, and then only can the roots be cut without injury. 7. When the tap root descends into a bad sub-soil, it brings on diseases in the tree.

The general conclusion is, that when the largest and best timber trees are an object, the seeds should be sown where the plants are to remain, and, consequently, the tap root is never injured; but that in fruit trees, it should always be shortened, to cause them to spread out horizontal roots near the surface, among the nutritive soil.—*Prussian Gardening Society.*

Age of Sheep.—The age of sheep may be known by examining their front teeth. They are eight in number, and appear during the first year all of a small size. In the second year, the two middle ones fall out, and their place is supplied by two new teeth, which are easily distinguished by being of a larger size. In third year two other small teeth, one from each side, drop out and are replaced by two large ones; so that there are now four large teeth in the middle, and two pointed ones on each side. In the fourth year the large teeth are six in number, and only two small ones remain, one at each end of the range. In the fifth year, the remaining small teeth are lost, and the whole front teeth are large. In the sixth year the whole begin to be broken; and in the seventh, sometime sooner, some fall out or are broken.—*Penny Mag.*

Lands in Virginia.—The Rev. Mr. Plummer, from Virginia, in addressing the Home Missionary Society, at its recent anniversary, remarked incidentally that, during the last few years, twenty thousand Swiss and Belgian emigrants had settled upon lands in Virginia and Maryland, which had been supposed to be worn out, and almost worthless; but which under their cultivation had been made as productive as the good lands of the West. In consequence of this, land has risen in value, and industry received a new impulse.—*N. Y. Far.*